



May 29, 2019

ADDENDUM NO. 2

TO THE CONTRACT DOCUMENTS

FOR

WALK-IN FREEZER INSTALLATION AND MISCELLANEOUS SITE IMPROVEMENTS

FOR THE

MORONGO UNIFIED SCHOOL DISTRICT
87-225 Church Street
Thermal, CA 92274

RCA Job No. 1-49-80

NOTICE TO BIDDERS

This Addendum forms a part of the Contract and modifies the original documents dated May 2019. It is intended that all work affected by the following modifications shall conform with related provisions and general conditions of the contract of the original drawings and specifications. Modify the following items wherever appearing in any drawing or sections of the specifications. Acknowledge receipt of Addendum No. 2 in the space provided on the Bid Form. Failure to do so may subject bidder to disqualification.

CHANGES TO THE SPECIFICATIONS

- Item No. 2.1 Reference Section 00020 - Notice Inviting Bids:
 - 2.1.1 Replace this section in its entirety per attached Notice Inviting Bids.

- Item No. 2.2 Reference Section 00663 - Hazardous Materials Certification:
 - 2.2.1 Replace this section in its entirety per attached Hazardous Materials Certification.

- Item No. 2.3 Reference Section 01011 - Work Scope Special Conditions:
 - 2.3.1 Add attached Work Scope Special Conditions in its entirety.

- Item No. 2.4 Reference Section 01210 - Allowances:
 - 2.4.1 Paragraph 3.1.1.1, revise to read as follows:
Category #04 \$30,000

- Item No. 2.5 Reference Section 01310 - Construction Schedule:
 - 2.5.1 Add attached Construction Schedule in its entirety

- Item No. 2.6 Reference New Section 01 23 00 - Alternates:
 - 2.6.1 Add attached new Section 01 23 00 in its entirety.

- Item No. 2.7 Reference New Section 03 30 01 - Cast-In-Place Concrete:
 - 2.7.1 Add attached new Section 03 30 01 in its entirety.

- Item No. 2.8 Reference New Section 05 12 00 - Structural Steel Framing:
 - 2.8.1 Add attached new Section 05 12 00 in its entirety.

- Item No. 2.9 Reference New Section 05 50 00 - Metal Fabrications:
 - 2.9.1 Add attached new Section 05 50 00 in its entirety.

- Item No. 2.10 Reference New Section 05 52 13 - Pipe and Tube Railings:
 - 2.10.1 Add attached new Section 05 52 13 in its entirety.

- Item No. 2.11 Reference New Section 07 62 00 - Flashing and Sheet Metal:
 - 2.11.1 Add attached new Section 07 62 00 in its entirety.

- Item No. 2.12 Reference New Section 07 90 05 - Joint Sealers:
 - 2.12.1 Add attached new Section 07 90 05 in its entirety.

- Item No. 2.13 Reference New Section 09 65 80 - Resilient Sheet Flooring (ALTERNATE NO. 1):
 - 2.13.1 Add attached new Section 09 65 80 in its entirety.

- Item No. 2.14 Reference New Section 09 91 23 - Exterior Painting:
 - 2.14.1 Add attached new Section 09 91 23 in its entirety.

- Item No. 2.15 Reference New Section 10 14 00 - Signage:
 - 2.15.1 Add attached new Section 10 14 00 in its entirety.

- Item No. 2.16 Reference New Section 10 14 53 -Site Signage:
 - 2.16.1 Add attached new Section 10 14 53 in its entirety.

- Item No. 2.17 Reference New Section 10 21 13 - Toilet Partitions (ALTERNATE NOS. 1 & 2):
 - 2.17.1 Add attached new Section 10 21 13 in its entirety.

- Item No. 2.18 Reference New Section 10 28 00 - Toilet Accessories:
 - 2.18.1 Add attached new Section 10 28 00 in its entirety.

- Item No. 2.19 Reference New Section 22 42 16.13 - Commercial Lavatories:
 - 2.19.1 Add attached new Section 22 43 16.13 in its entirety.

- Item No. 2.20 Reference New Section 31 23 16 - Excavation:
 - 2.20.1 Add attached new Section 31 23 16 in its entirety.

- Item No. 2.21 Reference New Section 32 12 16 - Asphalt Paving:
 - 2.21.1 Add attached new Section 32 12 16 in its entirety.

- Item No. 2.22 Reference New Section 32 13 13 - Concrete Paving:
 - 2.22.1 Add attached new Section 32 13 13 in its entirety.
- Item No. 2.23 Reference New Section 32 17 13 - Parking Appurtenances:
 - 2.23.1 Add attached new Section 32 17 13 in its entirety.
- Item No. 2.24 Reference New Section 32 17 23.13 - Painted Pavement Markings:
 - 2.24.1 Add attached new Section 32 17 23.13 in its entirety.
- Item No. 2.25 Reference New Section 32 17 26 - Tactile Warning Surfaces:
 - 2.25.1 Add attached new Section 32 17 26 in its entirety.
- Item No. 2.26 Reference New Section 32 31 13 - Chain Link Fences and Gates:
 - 2.26.1 Add attached new Section 32 31 13 in its entirety.
- Item No. 2.27 Reference New Section 32 31 19 - Ornamental Metal Fences and Gates (ALTERNATE NO. 1):
 - 2.27.1 Add attached new Section 32 31 19 in its entirety.

CHANGES TO THE DRAWINGS

DISTRICT OFFICE (04-117524)

- Item No. 2.28 Reference Sheet AS-1.0:
 - 2.28.1 Revise site plan per clouded areas of attached revised Sheet AS-1.0
- Item No. 2.29 Reference Sheet ASD-1.0:
 - 2.29.1 Revised Details 3, 4, 6, 16, 17 and 18 and added Detail 7 concrete paving detail per attached revised Sheet ASD-1.0.
- Item No. 2.30 Reference Sheet AD-1.0:
 - 2.30.1 New Details 17, 18 and 20 added and Keynotes updated per attached revised Sheet AD-1.0.

FRIENDLY HILLS ES (04-117407)

- Item No. 2.31 Reference Sheet A-1.0:
 - 2.31.1 Revised enlarged site plan to show a new location for the condenser and to show the curb 24" from door; Added enlarged Demo plan; Revised legend to show demo hatch per attached Sketch ASK-5.
 - 2.31.2 Revise Legend per attached Sketch ASK-6.
 - 2.31.3 Revised detail 8 to show compacted fill or natural grade underneath the concrete per attached Sketch ASK-7.
 - 2.31.4 Revised detail 12 to show new location for the condenser pad per attached Sketch ASK-8.

- Item No. 2.32 Reference Sheet ASD-1.0:
- 2.32.1 Revised Detail 13 to reference drinking fountain barrier installation detail and reference to blocking detail for D.F.; added Detail 17 drinking fountain barrier installation per attached Sketch ASK-2.
 - 2.32.2 Added new Detail 20 per attached Sketch ASK-3.
 - 2.32.3 Added new Details 21 and 22 per attached Sketch ASK-4.
 - 2.32.4 New Detail 29 added per attached Sketch ASK-18.
- Item No. 2.33 Reference Sheet S-0.1:
- 2.33.1 Relocate equipment pad from northwest side of freezer to southeast side of freezer. Refer to 8/S-0.2 for equipment pad details per attached Sketch SSK-2.1.
- Item No. 2.34 Reference Sheet FS.01.0:
- 2.34.1 Floor Plan revised per attached Sketch FSSK-1.0.
- Item No. 2.35 Reference Sheet FS.02.0:
- 2.35.1 Electrical Plan revised per attached Sketch FSSK-2.0.

FRIENDLY HILLS ES (04-116455)

- Item No. 2.36 The following scope per application 04-116455 is hereby added:
- 2.36.1 Construct new ADA concrete ramp at entry walkway. Reference Sheet AS-1.0 and ASK-23, ASK-24 and ASK-25.
 - 2.36.2 Paint "Fire Lane - No Parking" on existing curb along fire lane. Reference Sheet AS-1.1.
 - 2.36.3 Remove (1) and replace (1) existing non-compliant tow-away sign. Reference Sheet AS-1.0.
 - 2.36.4 Install new knock box at existing fire lane gate. Reference Sheet AS-1.1.
 - 2.36.5 Remove existing asphalt and concrete pavement. Patch and repair existing asphalt. 2. Construct new concrete pavement and curb. Reference ASK-9.
 - 2.36.6 ADA upgrade to existing portable Restrooms. Reference Sheet A-1.0.
 - 2.36.7 Relocate existing storage container, demo existing and construct new concrete ramp, and repair existing asphalt. Reference Sheet AS-1.0.
 - 2.36.8 New Paving Details added per Sketch ASK-10 and ASK-11.

LANDERS ES (04-117409)

- Item No. 2.37 Reference Sheet AS-1.0:
- 2.37.1 Added a reference to an existing drinking fountain and ref to a demo plan per attached Sketch ASK-12.
- Item No. 2.38 Reference Sheet ASD-1.0:
- 2.38.1 Revised Details 8 and 9 to show an existing drinking fountain per attached Sketch ASK-14.
 - 2.38.2 Added Detail 16 existing drinking fountain and Detail 17 new drinking fountain barriers per attached Sketch ASK-13.
 - 2.38.3 Add new Bollard Detail 29 per attached Sketch ASK-19.
 - 2.38.4 Remove drinking fountain Details 13 & 14.

- Item No. 2.39 Reference Sheet A-1.0:
2.39.1 Revised enlarged site plan to show a new location for the condenser and to show the curb 24" from door and added enlarged Demo plan per attached Sketch ASK-15.
2.39.2 Revised Detail 8 to show compacted fill or natural grade underneath the concrete and updated Legend per attached Sketch ASK-16.
2.39.3 Revised Detail 12 to show new location for the condenser pad and revised Detail 15 to show an existing wall instead of CMU wall per attached Sketch ASK-17.
- Item No. 2.40 Reference Sheet S-0.1:
2.40.1 Relocate equipment pad from northwest side of freezer to southeast side of freezer. Refer to 8/S-0.2 for equipment pad details per attached Sketch SSK-2.1.
- Item No. 2.41 Reference Sheet FS.01.0:
2.41.1 Revise Floor Plan per attached Sketch FSSK-1.0.
- Item No. 2.42 Reference Sheet FS.02.0:
2.42.1 Electrical Plan revised per attached Sketch FSSK-2.0.

YUCCA VALLEY ES (04-117409)

- Item No. 2.43 Reference Sheet A-1.0:
2.43.1 Install new bollards around condenser unit per attached Sketch ASK-20.
2.43.2 Revised enlarged site plan to show the curb 24" from door per attached Sketch ASK-21.
- Item No. 2.44 Reference Sheet ASD-1.0:
2.44.1 Add new Bollard Detail 29 per attached Sketch ASK-22.
- Item No. 2.45 Reference Sheet FS.04.0:
2.45.1 Detail B, contract shall include new Duro-Last Roof Membrane as part of bid. Match material used on Friendly Hills and Landers ES.

ATTACHMENTS

Specifications 00020, 00663, 01011, 01310, 01 23 00, 03 30 01, 05 12 00, 05 50 00, 05 52 13, 07 62 00, 07 90 05, 09 65 80, 09 91 23, 10 14 00, 10 14 53, 10 21 13, 10 28 00, 22 42 16.13, 31 23 16, 32 12 16, 32 13 13, 32 17 13, 32 17 23.13, 32 17 26, 32 31 13, 32 31 19

Sketches

Friendly Hills Freezer ASK-1, ASK-2, ASK-3, ASK-4, ASK-5, ASK-6, ASK-, ASK-8, ASK-18, SSK-2.1, FSSK-1.0, FSSK-2.0

Friendly Hills Shade ASK-9, ASK-10, ASK-11, ASK-23, ASK-24, ASK-25

Landers Freezer ASK-12, ASK-13, ASK-14, ASK-15, ASK-16, ASK-17, ASK-19, SSK-2.1, FSSK-1.0, FSSK-2.0

Yucca Valley Freezer ASK-20, ASK-21, ASK-22

Sheets

District Office AS-1.0, ASD-1.0, AD-1.0

Friendly Hills ES Shade AS-1.0, AS-1.1, A-1.0

END OF ADDENDUM NO. 2

Roger Clarke, Principal
#C-21340

NOTICE INVITING BIDS

NOTICE IS HEREBY GIVEN that the **MORONGO UNIFIED SCHOOL DISTRICT** of **SAN BERNARDINO** County, California, acting by and through its Governing Board, hereinafter referred to as the District, will receive up to, but not later than **2:00 PM** on **Wednesday, June 5, 2019**, sealed bids for the award of a contract for the construction of:

District Bid No. 19-04

**Walk in Freezer Installations and Miscellaneous Site Improvements
at Multiple Sites**

District Office - 5715 Utah Trail, 29 Palms, CA 92277

Friendly Hills Elementary School - 7252 Sunny Vista Road, Joshua Tree, CA 92252

Landers Elementary School - 56450 Reche Road, Landers, CA 92285

Yucca Valley Elementary School - 7601 Hopi Trail, Yucca Valley, CA 92284

At **2:00 PM** on **Wednesday, June 5, 2019** all sealed bids will be publicly opened and read aloud. Bid Package categories (*and the California Contractor License classification/s which is/are hereby deemed acceptable for submitting a singular category type prime bid*) are as follows:

CATEGORY NUMBER 04: (CA License Classification B)

03 30 01	Cast-In-Place Concrete System
05 12 00	Structural Steel Framing
05 50 00	Metal Fabrications
05 52 13	Pipe and Tube Railing
07 62 00	Flashing and Sheet Metal
07 90 05	Joint Sealants
09 91 23	Exterior Painting
09 65 80	Resilient Sheet Flooring (Alternate No.1)
10 14 00	Signage
10 14 53	Site Signage
10 28 00	Toilet Accessories
10 21 13	Toilet Partitions (Alternate No. 1 & 2)
22 42 16.13	Commercial Lavatories
11 40 00	Food Service Equipment
31 23 16	Excavation
32 12 16	Asphalt Paving
32 13 13	Concrete Paving
32 17 13	Parking Appurtenances
32 17 23.13	Painted Pavement Markings
32 17 26	Tactile Warning Surfacing
32 31 13	Chain Link Fences and Gates
32 31 19	Ornamental Fences and Gates (Alternate 1)

All bids shall be made on a bid form furnished by the District.

Bids will be received at the Purchasing Office of the Morongo Unified School District on or before the time and date stated above. At **2:00 PM** on **Wednesday, June 5, 2019** all sealed bids will be publicly opened and read aloud at the aforementioned address. Prospective contract bidders may secure documents (free of charge) in electronic format on-line only through "Secure Box" by contacting the District's Construction Manager, **LEDESMA & MEYER CONSTRUCTION COMPANY INC, 9441 HAVEN AVENUE, RANCHO CUCAMONGA, CALIFORNIA, 91730, (phone number: (909) 476-0590, fax number: (909) 476-0592 attention Jennifer Johnson, Project Coordinator (email jenniferj@lmcci.com).**

Each bid must conform and be responsive to all pertinent Bidding and Contract Documents. Copies are on file and open for public inspection at the District Office.

For information regarding this project, prospective bidders are requested to contact **LEDESMA & MEYER CONSTRUCTION COMPANY INC, 9441 HAVEN AVENUE, RANCHO CUCAMONGA, CALIFORNIA, 91730-5844, phone number (909) 476-0590, fax number (909) 476-0592.**

Attention is directed to the requirements of the Information for Bidders regarding goals for Disabled Veteran Business Enterprise (DVBE) participation on this project. This project has a goal of 3% DVBE participation.

Each bid, must be on the District's bid form and shall be accompanied by the Bid Bond Security, Bidder Questionnaire, DIR Registration Verification, Acknowledgement of Bidding Practices Regarding Indemnity, list of Designated Subcontractors, Non Collusion Declaration DVBE Participation Statement.

Prime Contractors bidding this work shall require, pursuant to Public Contract Code article 4108, all subcontractors providing labor and materials in excess of \$100,000.00 to supply an original signature and fully executed 100% Faithful Performance and 100% Payment Bond. All prime contractors bidding on this work must specify this requirement for subcontractor bonds in their written or published request for subcontractor bids. Failure to comply with this requirement shall not preclude contractor from complying with the subcontractor bonding requirements.

Bonds are required for each specification section or combination of sections which exceed(s) the limit listed above. The practice of issuing separate purchase orders and / or subcontracts for the purpose of circumventing the subcontractor bonding requirement shall not serve to exempt the Contractor from these requirements.

No payments, except for a reimbursement payment to the Prime Contractor for the cost of the Prime Contractor's own Faithful Performance and Payment Bonds, shall be made to the Prime Contractor until the Prime Contractor provides the aforementioned subcontractor bonds to the District through the Construction Manager.

IMPORTANT NOTICE: This project is subject to DIR Public Works Funding Legislation - SB 854. To bid on this Project, the Prime Bidder and all of Prime Bidder's Subcontractors are required to be registered online as a "public works contractor" with the California Department of Industrial Relations at www.dir.ca.gov/public-works/ppublicworks.html and each shall pay an annual non-refundable \$400.00 fee via credit card.

The schedule of per diem wages is based upon a working day of eight (8) hours. The Contractor and all Subcontractors under the Contractor shall pay all workers on all work performed pursuant to this Contract not less than the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work as determined by the Director of the Department of Industrial Relations, State of California, for the type of work performed and the locality in which the work is to be performed within the boundaries of the District, pursuant to sections 1770 et seq. of the California Labor Code.

The District has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which the work is to be performed for each craft, classification or type of work needed to execute the contract pursuant to sections 1770et. Seq. of the California Labor Code. Holiday rates shall be paid as specified in the collective bargaining agreement applicable to each particular craft, classification or type of work employed on the project. General prevailing wage rate information is also available on the internet at (<http://www.dir.ca.gov>).

In accordance with Section 1773.2 of the California Labor Code, the Contractor shall post a copy of the determination of prevailing rate of wages at each job site.

A payment bond and performance bond will be required prior to the execution of the contract. The payment bond and performance bond shall be in the form and amount set forth in the Contract Documents.

In accordance with provisions of Public Contract Code Section 22300, substitution of eligible and equivalent securities for any monies withheld to ensure performance under this contract will be permitted at the request and expense of the contractor.

All bidders must be properly licensed at time of bid pursuant to Public Contract Code Section 3300 and Business and Professions Code Section 7028.15. Failure to satisfy this requirement shall disqualify bidder. The successful bidder must maintain the license throughout the duration of this contract.

No bidder may withdraw his bid for a period of **NINETY (90)** days after the date set for the opening thereof.

The District reserves the right to reject any and all bids and to waive irregularities in any bid.

For further information consult the Information for Bidders and the Contract Documents.

PRE-BID CONFERENCE: A pre-bid conference will be held in the **Main Conference Room at the District Office 5715 Utah Trail, 29 Palms, CA 92277** for attendance by any interested bidder with representatives of the District, the Architect, and the Construction Manager on **Monday, May 20, 2019 at 9:00 AM.**

First publication: **THURSDAY, MAY 9, 2019**
Second publication: **THURSDAY, MAY 16, 2019**

Bids Due and Opened: **WEDNESDAY, JUNE 5, 2019**
END OF SECTION

HAZARDOUS MATERIALS CERTIFICATION

Contract for category number _____ for the **Walk in Freezer Installations and Miscellaneous Site Improvements** between **MORONGO UNIFIED SCHOOL DISTRICT** ("District") and _____ ("Bidder").

1. Contractor hereby certifies that no Asbestos, or Asbestos-Containing Materials, polychlorinated biphenyl (PCB), or any material listed by the federal or state Environmental Protection Agency or federal and state health agencies as a hazardous material, or any other material defined as being hazardous under federal or state laws, rules, or regulations ("New Hazardous Material"), shall be furnished, installed, or incorporated in any way into the Project or in tools, devices, clothing, or equipment used to affect any portion of Contractor's work on the Project for District.
2. Contractor further certifies that it has instructed its employees with respect to the above mentioned standards, hazards, risks, and liabilities.
3. Asbestos and/or asbestos-containing material shall be defined as all items containing but not limited to chrysotile, crocidolite, amosite, anthophyllite, remolite, and actinolite. Any or all material containing greater than one-tenth of one percent (0.1%) asbestos shall be defined as asbestos-containing material.
4. Any disputes involving the question of whether or not material is New Hazardous Material shall be settled by electron microscopy or other appropriate and recognized testing procedure, at the District's determination. The costs of any such tests shall be paid by Contractor if the material is found to be New Hazardous Material.
5. All Work or materials found to be New Hazardous Material or Work or material installed with equipment containing "New Hazardous Material" will be immediately rejected and this Work will be removed at Contractor's expense at no additional cost to the District.
6. Contractor has read and understood the document Hazardous Materials Procedures & Requirements, and shall comply with all the provisions outlined therein.

Date: _____

Proper Name of Contractor: _____

Signature of authorized person: _____

Print Name: _____

Title: _____

END OF DOCUMENT

WALK-IN FREEZER INSTALLATION AND MISCELLANEOUS SITE IMPROVEMENTS
WORK SCOPE SPECIAL CONDITIONS

#	DESCRIPTION	Category 4
1	The Trade Contractor is responsible for the whole Project as contractually set forth as the Contract Documents. This Trade Contractor shall be responsible for the inclusion of adequate amounts to cover installation of all items indicated, described, or implied within the Contract Documents, as there is only a singular Category Contractor for these projects.	yes
2	This Category Contractor shall maintain a Field Record Set of drawings at the site which shall include all Addenda. Contractor shall mark/red-line (at the time of installation and prior to backfill) these Record Drawings neatly and clearly to include all horizontal and vertical dimensions and elevations of all underground piping installed within this category. Said mark/red-lines, including all dimensions, shall be transferred to the Construction Managers "Master Set" of Drawings located in the Construction Managers on site construction office weekly, as applicable. Failure to do so will hold up approval of monthly project billings.	yes
3	All trades are required to video tape all in-services and provide same on a flash drive as part of closeouts. The in-service training video must be done onsite and should be made while the appropriate District Staff are present and represented in the video.	yes
4	Please Note: The District Office Project, Scope of Work pertaining to the New Walk-In Freezer, New Walk-In Cooler, & New Storage is not in contract as this work was previously completed. Remaining work shown in the Contract Documents is required scope for this Project.	yes
5	Properly and completely coordinate all work through the Construction Manager and with all other trades to ensure that all work is properly & efficiently installed per the Contract Documents.	yes
6	Construction hours will be Monday through Friday, between the hours of 7:00am-3:30pm and in conjunction with City Ordinance. Weekend work and afterhours work will only be allowed with prior approval of the Construction Manager.	yes
7	All daily reports shall be turned into the Construction Manager no later than 12:00 noon each day.	yes
8	Include allowances as listed in Specification Section 01210	yes
9	This Category Contractor shall provide all project submittals no later than ten (10) calendar days after receipt of Notice to Proceed. Each Category Contractor will need to provide (1) electronic PDF copy of each submittal, shop drawing and product data. If required per Architect's or Engineer's requirements(1) hard copy of shop drawings must be provided upon request.	yes
10	This Category Contractor will provide and maintain one (1) temporary chemical type toilet facility and one (1) associated hand wash for each site throughout the duration of the project as pursuant to OSHA Standard 1526. All temporary toilets and hand wash stations shall be properly serviced twice weekly.	yes
11	This Category Contractor shall completely disassemble and safely store the existing Master-Bilt walk in freezers and all related components of said freezers in order to perform new work. This work includes but not limited to, disconnecting all electrical connections, plumbing piping, refrigerant piping, condensers, mounting hardware, freezer racks and shelving, etc.	yes

WALK-IN FREEZER INSTALLATION AND MISCELLANEOUS SITE IMPROVEMENTS

WORK SCOPE SPECIAL CONDITIONS

#	DESCRIPTION	Category 4
12	This Category Contractor shall completely re-assemble the Master-Bilt walk in freezers and reconnect all existing components and equipment to provide a complete and operable system. This work is to include any and all required extensions of existing conduit, wire, condensate piping, refrigerant piping, mounting hardware, etc. Including but not limited to the installation of the manufacture provided single ply roofing system. Roofing membrane and EPS sloped foam roofing materials is located onsite & inside the existing freezers, <u>except for the roofing membrane at Yucca Valley ES, which is to be provided by the Contractor and is to match the other sites roofing materials.</u> Installing contractor is to provide all required nailers, termination bars, strip mastic, fasteners, separation slip sheets, and sealants per sheet FS.04.0 Detail B, General Notes, and per the manufactures recommendations.	yes
13	All Contractors shall provide trash containers and/or properly and legally dispose of on a daily basis all demolished items, waste, trash, lunch trash and construction debris generated by this Contractor. This includes procurement of all hauling permits and/or dump fees which may be required. This applies equally to any and all Subcontractors employed by the Prime Contractors. The use of the District's dumpsters shall not be permitted.	yes
14	At all Construction areas, Site Lay down Areas, Storage Areas, Staging Areas, Bin/Container Areas, and Trailer Areas, this Contractor shall provide proper dust and temporary erosion "Best Available Control Measures" during all operations within this Category as required by all applicable laws, codes, regulations and / or ordinances. This Contractor shall properly install, maintain and service all measures as required to meet proper control, and then remove all said measures and devices from the site at the conclusion of their requirements. Ref: AQMD Rule 30, and SWPPP requirements.	yes
15	Be advised- The project site is located in an area of potential high winds. The protection against, and prevention of, high wind damage to incomplete work or on site stored materials of this Category Contractor is this Category Contractor's responsibility.	yes
16	Be advised - The project site is located in an area of potential high heat. The protection against, and prevention of, heat damage to incomplete work or on-site stored materials is the responsibility of the Contractor.	yes
17	This Category Contractor shall load, properly haul and legally dispose of at an offsite location all unused "spoils" and/or unsuitable "spoils" (dirt, rocks, fill material, vegetation) generated by this Category Contractor. This shall include procurement and payment of all hauling permits and/or dump fees which may be required. Said "spoils" shall be removed from the site within 24 to 48 hours after receipt of written notice from the Construction Manager.	yes
18	This Category Contractor is responsible for all final cleaning of the interior and exterior work areas at all applicable buildings. This work includes but not limited too, vacuuming, wiping down of hard surfaces, pressure washing all concrete and asphalt areas, removal of all trash, and washing down all exterior surfaces and freezer boxes.	yes
19	Temporary power will not be provided. This Category Contractor shall provide a portable generator if power and lighting are needed, and as depicted in the Project Specifications Section 01500 Construction Facilities.	yes
20	This Category Contractor shall provide and pay for all layout, staking, and engineering, as required, to complete work in this category. Field Engineering is not being supplied or paid for by the District.	yes
21	All Contractor's foremen are to be equipped with active mobile phones for a constant communication line with the Construction Manager.	yes
22	Properly protect all existing improvements scheduled to remain when performing work within this Category. Any damage caused will be this Category Contractor's responsibility to repair at no cost to the District and must be repaired to the satisfactory of the Construction Manager.	yes

ADDENDUM 2

WALK-IN FREEZER INSTALLATION AND MISCELLANEOUS SITE IMPROVEMENTS
WORK SCOPE SPECIAL CONDITIONS

#	DESCRIPTION	Category 4
23	Repair and/or replace existing irrigation, irrigation controls and landscaping damaged during the execution of work in this Category to the satisfaction of the Construction Manager and District. All repairs are to be preformed utilizing the same quality of materials (or better) as presently installed.	yes
24	Due to work being performed in occupied buildings, this Category Contractor shall move & protect any existing furnishings required to gain access to perform work. This includes but not limited to any existing desks, tables, or cabinets. Any items moved shall be put back in its original locations.	yes
25	At no time will any Contractors or Subcontractors park their vehicles around or between buildings. All vehicles will be parked at designated parking areas. Only vehicles with consent of the Construction Manager will be allowed to park outside designated parking areas.	yes
26	Utilize suitable equipment for traversing the site, hauling or relocating of materials, and erection of items within this trade regardless of soil conditions or grades at no additional cost or delay to schedule.	yes
27	All deliveries and materials, or equipment moving between construction areas shall be escorted by Contractor provided flag-man and spotter, and shall be coordinated and approved by the Construction Manager prior to commencement.	yes
28	Provide all traffic control, barricades, warning lights & signs, required for the execution of the work within this Category.	yes
29	Provide all job verification & field measuring as may be needed and/or required to ensure that the work is coordinated and fits properly.	yes
30	Contractors requiring welders shall provide gas powered welders or a generator to run said welder. No electric welders are to be connected directly to the building's power.	yes
31	Carefully remove and reinstall any chain link or wrought iron fencing, temporary or permanent, encountered while installing work or as required to gain access to work within this Category (if required due to field conditions whether or not said fencing is shown on the drawings). Said fencing shall be repaired and/or reinstalled daily to maintain site security and safety.	yes
32	This Category Contractor shall provide and pay for any required temporary fencing and/or site security for all on-site and off-site stored materials, tools, and equipment.	yes
33	As required for work within this Category, Contractor shall provide all concrete and paint wash-out containment and legal disposal of same per all local, state and federal laws, regulations and requirements. This includes procurement and payment of all hauling permits and / or disposal fees which may be required.	yes
34	Provide demolition of all items as required per the Plans and Specifications, including but not limited to, items required for installation of new finishes, whether shown on the Drawings or not. All hauling, disposal, permits, fees, and requirements thereof for environmental compliance, shall be included in base bid.	yes
35	This Category Contractor shall saw cut existing concrete and asphalt paving to nearest existing joint to provide a smooth edge for patching and/or adjoining new work to existing improvements when performing work in this Category. No overcuts and/or spalling will be acceptable.	yes
36	This Category Contractor shall remove and dispose of all existing utilities scheduled for removal after cutting and capping of the applicable utilities has taken place.	yes
37	This Category Contractor shall remove all Existing Condenser mounting brackets, anchors, and attachments once the condenser has been removed for relocation. This work is to include all required patching & painting to match existing, at all wall penetrations from said mounting hardware.	yes

ADDENDUM 2

WALK-IN FREEZER INSTALLATION AND MISCELLANEOUS SITE IMPROVEMENTS
WORK SCOPE SPECIAL CONDITIONS

#	DESCRIPTION	Category 4
38	This Category Contractor shall provide and install complete all new chain link and/or wrought iron (ornamental) fencing & gates as shown on the Contract Documents. This work is to include but not limited to all footings, reinforcing, welding, hardware, and painting as required to provide a complete and operable system.	yes
39	This Category Contractor shall modify the chain link and/or wrought iron (ornamental) fencing & gates as shown on the Contract Documents. This work is to include but not limited to all footings, reinforcing, welding, hardware, and painting as required to provide a complete and operable system.	yes
40	Clean and or repair all asphalt and concrete damaged as of result of work within this Category. This shall include removal of all scuff and tire marks left from equipment.	yes
41	Furnish & install redwood headers wherever asphalt paving does not terminate against concrete, masonry, or existing asphalt paving whether shown or not. No raw or wild edges will be permitted.	yes
42	After all vaults, pull boxes, clean-outs, manhole covers, etc. have been uncovered in the asphalt paved areas & raised flush to the adjacent paving elevation by others, neatly pave around these items, unless noted otherwise.	yes
43	Scarification of existing subgrade, compaction, & fine grade all areas under asphalt concrete paving prior to spreading of base or paving.	yes
44	This Category Contractor shall provide and install complete all asphalt paving and base as shown on this Project.	yes
45	This Category Contractor shall provide and install all concrete wheel stops as applicable to this Project.	yes
46	Furnish & install all concrete curb & gutter which borders asphalt paving.	yes
47	This Category Contractor shall provide a 2" asphalt grind and overlay to join all new asphalt paving to the existing paving.	yes
48	This Category Contractor shall restripe and or re-paint all parking lines, game lines, line up numbers, door swing lines, etc., on asphalt and or concrete surfaces damaged as a result of work within it's package.	yes
49	Furnish, and install, all ADA accessible ramps & stairs, as shown on the Project Documents. This work is to include any handrails and asphalt/concrete patch in existing paving required for installation.	yes
50	Layout, furnish, and install all parking lot and driveway striping, handicap striping, markings and signage, or any pavement markings shown on both asphalt and concrete surfaces, as required per the contract documents. This includes any necessary grinding and removal of existing items and striping, as noted.	yes
51	Provide and install all concrete equipment pads, curbs, and caissons complete, including all demolition and removal of the existing Asphalt/Concrete surfaces, scarification, and recompaction of grade, as required for the proper installation of the new freezer and condensing pads. This includes but not limited to all concrete dowels, epoxy, and rebar as shown on Sheet S-0.2.	yes
52	Thoroughly clean the bonding surfaces of all footings, including the protruding reinforcing steel from said footings, by means of sandblasting to the satisfaction of the District's Inspector.	yes
53	Completely furnish and install all fiberboard expansion joint material whether, or not, shown adjacent to poured-in-place concrete slabs on grade and concrete walls including backer rod and caulking, as required.	yes
54	Any and all penetrations through existing concrete, plaster, concrete masonry unit, gypsum board, or asphaltic concrete materials shall be neatly done by means of saw cutting or coring by this Category Contractor	yes
55	Provide and properly install all bollards or pipe guard posts complete including sleeves (if required) and solid grouting and/or concrete fill after installation. Work to include but not limited to excavation, footings, & painting of bollards in "Safety Yellow" color.	yes

ADDENDUM 2

WALK-IN FREEZER INSTALLATION AND MISCELLANEOUS SITE IMPROVEMENTS
WORK SCOPE SPECIAL CONDITIONS

#	DESCRIPTION	Category 4
56	Furnish and install all non-shrink grout between new freezer curb and freezer box, as shown on S-02 Detail 1.	yes
57	This Category Contractor shall provide all exposed structural steel hot dipped galvanized per Structural Steel and Miscellaneous Metal Note 15 on Sheet S-0.1. This work includes but not limited to all grinding and touch up of field welds and proper protection of surrounding finishes.	yes
58	Completely furnish and install all galvanized sheet metal items/flashing as required for work within this Category.	yes
59	This Category Contractor shall completely furnish and properly install all structural and miscellaneous steel as required per the Contract Documents. This work is to include but not limited to any and all steel plates, brackets & welding.	yes
60	Provide all welding as required for the installation of work required within the package.	yes
61	Furnish, and install, all site handrails, guardrails, and stair rails including layout, concrete coring, and grouting for installation. This includes, but is not limited to, any necessary backing plates, sleeves, welding, grinding, galvanizing, etc.	yes
62	This Category Contractor shall perform all ADA work for the Restroom Modifications as shown in the Contract Documents. Including but not limited to the relocation and/or removal of existing accessories and partitions, providing and installation of new accessories and partitions, signage, framing, conduit, wire, and all patching in kind, of existing finishes. All existing accessories shown to be removed and not intended to be reused, shall be turned over to the District.	yes
63	This Category Contractor shall perform all required ADA Drinking Fountain Work as shown in the Project Documents. Including but not limited to all required demolition, installation, modifications, and patch of new and existing finishes to ensure complete compliant installation.	yes
64	Provide and Install a New Knox Box at the Existing South Double Entry Gate on the corner of Alta Loma Drive and Sunny Vista Road at Friendly Hills ES. Reference Sheet AS-2.0 for location of required Knox Box.	yes
65	Provide all fire stopping and caulking materials as required by code for penetrations of work by this Category Contractor through rated walls and partitions. The applicable Category Contractor that causes the penetration, be it by design or field condition, shall furnish and install proper sleeves and fire stopping sealant as required by Code.	yes
66	Completely furnish and properly install all Unistruts as required for work within this Category.	yes
67	Provide all patching and flashing of all conduit and/or pipe penetrations as required for work in this in Category.	yes
68	Provide and install all condensate piping, including all final connections and testing as indicated within the contract documents.	yes
69	Furnish and install all sleeves required for work within this Category.	yes
70	Furnish and install all braces, brackets, and specialty support or mounting systems which may be required to install work within this Category.	yes
71	Layout, furnish, and install all backing and/or blocking as required for work in this Category.	yes
72	Contractor to provide and install any interior/exterior caulking around any and all penetrations associated with work performed by this Category Contractor.	yes
73	Contractor to provide and install all piping insulation as required.	yes
74	Contractor is to remove the existing ACP (Acoustical Ceiling Panels) and replace with new ACP at the girls restroom as depicted on Sheet AS-3.2 Detail 9.	yes

ADDENDUM 2

**WALK-IN FREEZER INSTALLATION AND MISCELLANEOUS SITE IMPROVEMENTS
WORK SCOPE SPECIAL CONDITIONS**

#	DESCRIPTION	Category 4
75	Contractor is to provide and install complete, new Vinyl Sheet Flooring, Rubber Base and accessories at the existing restroom building as depicted in the Project Documents. This work is to include but not limited to all required demo of the existing flooring, sub-floor prep, and trim for said new flooring.	yes

Activity ID	Activity Name	Start	Finish	Orig Dur	2019																							
					June				July				August				September				October							
					02	09	16	23	30	07	14	21	28	04	11	18	25	01	08	15	22	29	06					
Walk-In Freezer & Site Improvements																												
Project Information																												
GPI-00-01	Project Bid Date	05-Jun-19*	05-Jun-19	1	Project Bid Date																							
GPI-00-02	Board Meeting	25-Jun-19*	25-Jun-19	1	Board Meeting																							
GPI-00-03	Notice of Award Issued	26-Jun-19	26-Jun-19	1	Notice of Award Issued																							
GPI-04-01	Submit Structural Steel Submittals (Critical)	26-Jun-19	27-Jun-19	2	█ Submit Structural Steel Submittals (Critical)																							
GPI-04-02	Submit Concrete Mix Designs & Rebar (Critical)	26-Jun-19	02-Jul-19	5	█ Submit Concrete Mix Designs & Rebar (Critical)																							
GPI-04-03	Submit General Submittals	26-Jun-19	10-Jul-19	10	█ Submit General Submittals																							
GPI-00-08	Review and Approve Structural Steel Submittals	28-Jun-19	01-Jul-19	2	█ Review and Approve Structural Steel Submittals																							
GPI-00-04	Contractual Start	01-Jul-19	01-Jul-19	1	Contractual Start																							
GPI-00-05	Construction Start	01-Jul-19	01-Jul-19	1	Construction Start																							
GPI-04-04	Fabricate Structural Steel	02-Jul-19	16-Jul-19	10	█ Fabricate Structural Steel																							
GPI-00-09	Review and Approve Concrete Mix Design & Rebar Submittals	03-Jul-19	10-Jul-19	5	█ Review and Approve Concrete Mix Design & Rebar Submittals																							
GPI-00-10	Review and Approve General Submittals	11-Jul-19	17-Jul-19	5	█ Review and Approve General Submittals																							
GPI-04-05	Fabricate and Deliver Rebar	11-Jul-19	17-Jul-19	5	█ Fabricate and Deliver Rebar																							
GPI-04-06	Deliver Steel Embed Columns	17-Jul-19	17-Jul-19	1	Deliver Steel Embed Columns																							
GPI-00-11	Compose Architectural Punch List	15-Aug-19	19-Aug-19	3	█ Compose Architectural Punch List																							
GPI-00-12	Contractor Complete Architectural Punch List	20-Aug-19	26-Aug-19	5	█ Contractor Complete Architectural Punch List																							
GPI-00-13	Closeout Documents	23-Aug-19	21-Sep-19	30	█ Closeout Documents																							
GPI-00-06	Construction Completion	27-Aug-19	27-Aug-19	1	Construction Completion																							
GPI-00-07	Contractual Completion	27-Sep-19	27-Sep-19*	1	Contractual Completion																							
Friendly Hills																												
FH-04-01	Disconnect & Dismantle Existing Freezer and Equipment	01-Jul-19	02-Jul-19	2	█ Disconnect & Dismantle Existing Freezer and Equipment																							
FH-04-02	Demo Existing Site Work	01-Jul-19	10-Jul-19	7	█ Demo Existing Site Work																							
FH-04-06	Grade, Form & Pour ADA Sitework Concrete	11-Jul-19	17-Jul-19	5	█ Grade, Form & Pour ADA Sitework Concrete																							
FH-04-04	Freezer Foundations and Footings	17-Jul-19	22-Jul-19	4	█ Freezer Foundations and Footings																							
FH-04-07	ADA Drinking Fountain Plumbing Rough-In	18-Jul-19	19-Jul-19	2	█ ADA Drinking Fountain Plumbing Rough-In																							
FH-04-08	Install Handrails	18-Jul-19	24-Jul-19	5	█ Install Handrails																							
FH-04-10	ADA Restroom Modifications and Signage	18-Jul-19	23-Jul-19	4	█ ADA Restroom Modifications and Signage																							
FH-04-11	Install New Door Hardware	18-Jul-19	18-Jul-19	1	Install New Door Hardware																							
FH-04-13	ADA Drinking Fountain Plaster Paper and Lath	22-Jul-19	22-Jul-19	1	ADA Drinking Fountain Plaster Paper and Lath																							
FH-04-03	Install Structural Steel	23-Jul-19	24-Jul-19	2	█ Install Structural Steel																							



- Actual Work
- Remaining Work
- Critical Remaining Work
- Milestone

Walk-In Freezer Installation
and Site Improvements

Ledesma & Meyer Construction Co. Inc.
Addendum # 2

Bid Schedule

Date	Revision	Checked	Approved
23-May-19	Bid Schedule	TJL	KM

SECTION 01 23 00
ALTERNATES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Requirements and descriptions of alternate products and scopes of Work.

1.02 RELATED SECTIONS

- A. Refer to Sections indicated in Alternate descriptions and as may be determined to be related to Work affected by alternate products and scope descriptions.

1.03 ALTERNATES DEFINED

- A. Alternates are defined as alternate products, materials, equipment, systems, methods or major elements of construction, which may, at District's option and under terms established in the Agreement, be selected for the Work instead of the corresponding requirements of the Contract Documents.

1.04 GENERAL REQUIREMENTS FOR ALTERNATES

- A. To enable District to compare total costs where alternate materials and methods might be used, Alternates described in this Section have been established.
- B. Contract Sum included in Base Bid and as stated in executed Agreement shall include all costs for Work described in Contract Documents.
- C. Contract Sum shall include all necessary provisions for Work described in Alternates, whether or not Alternates are accepted.
- D. Bid Form or other means prescribed for submission of proposed cost of Work shall include line items for each Alternate described in this Section. No Alternates other than as described in this Section shall be submitted, except as otherwise provided in Section 01 60 00 - Product Requirements for product options and substitutions.
- E. Each Alternate is identified herein by number. This identification shall be used whenever referring to Work described in Alternate and when submitting cost proposals and payment requests.
- F. Changes described in Alternates shall be incorporated into Work only when such Alternate is made a part of the Work by specific provision in the Owner-Contractor Agreement, if selected by District prior to execution of the Agreement, or by Change Order if selected subsequent to execution of Agreement.
- G. Costs for Alternates shall be valid for no less than sixty (60) days from date of Agreement and District may select to any or all Alternates during that time. Once an Alternate is selected and the Contract modified to Work as described in the Alternate, changes to return to original scope of Work will be made only by Change Order in accordance with provisions of the General Conditions for changes.

1.05 PRODUCTS AND EXECUTION

- A. If District elects to proceed on the basis of one or more of the described Alternates, Contractor shall make all modifications to Work as required to provide products complete, in place and fully functional, including all labor, equipment, services and incidental consumables necessary to apply, install and finish Work described in Alternate in accordance with requirements specified in related Sections of these Specifications.
- B. Installation of Alternates shall not be started until details, plans or structural calculations have been accepted and signed by the Architect, Structural Engineer when applicable, and approved by DSA.
- C. Cost for Alternates shall be complete and include all net increases and decreases in Contract Sum for Work described in Alternate and for all changes in related Work. No claims for additional costs to District will be honored other than as stated in cost proposal for each Alternate.

1.06 ALTERNATES

A. Alternate 1 - Black Rock Continuation High School

1. Base Bid: Exclude all work related to Black Rock Continuation High School.
2. Alternate 1, Include scope as shown in color on Sheets C-3.1, C-3.2, AS-3.0, AS-3.1, AS-3.2, ASD-1.0, ASD-1.1. All other work shown on plans is complete and shall not be included as part of this bid:
 1. Demo existing curb ramp, passenger loading zone, steps, concrete walkway, ramp, and metal fence and gates, chain link fence and gate, and asphalt pavement. Reference Sheet AS-3.0 and new Specification Section 32 31 19 - Ornamental Metal Fences and Gates.
 2. Construct new curb ramp, passenger loading zone, steps, concrete walkway, ramp, and metal fence and gates, chain link fence and gate, and asphalt pavement. Reference Sheets C-3.1 and AS-3.1.
 3. Extend handrail at bottom of existing portable Classroom R-4 ramp. Reference Detail 2/AS-3.1.
 4. ADA upgrade to existing portable Restrooms. Reference Sheet AS-3.2 and new Specification Sections 09 65 80 - Resilient Sheet Flooring and 10 23 16 - Toilet Partitions.

B. Alternate 2 - ICE West Continuation High School

1. Base Bid: Exclude all work related to ICE West Continuation High School.
2. Alternate 2, Include scope as shown in color on Sheets C-3.1, C-3.2, AS-1.1, AS-3.1, ASD-1.0. All other work shown on plans is complete and shall not be included as part of this bid:
 1. Paint "No Parking" marking at existing passenger loading zone. Reference Detail 25/AS-3.1.
 2. Install new ADA parking signage. Reference Detail 20/AS-3.1.
 3. Install new truncated domes at existing ADA parking stalls and curb ramp. Reference Sheet AS-1.1 and Detail 20/AS-3.1.
 4. Provide 6" curb at existing standard parking stalls. Reference Enlarged Plan 3/AS-3.1.
 5. Demo portion of existing and construct new concrete walkway. Reference Sheet C-3.1.
 6. ADA upgrade to existing restrooms. Reference Sheet AS-3.1 and new Specification Section 10 23 16 - Toilet Partitions.

PART 2 - PRODUCTS - (NOT APPLICABLE TO THIS SECTION.)

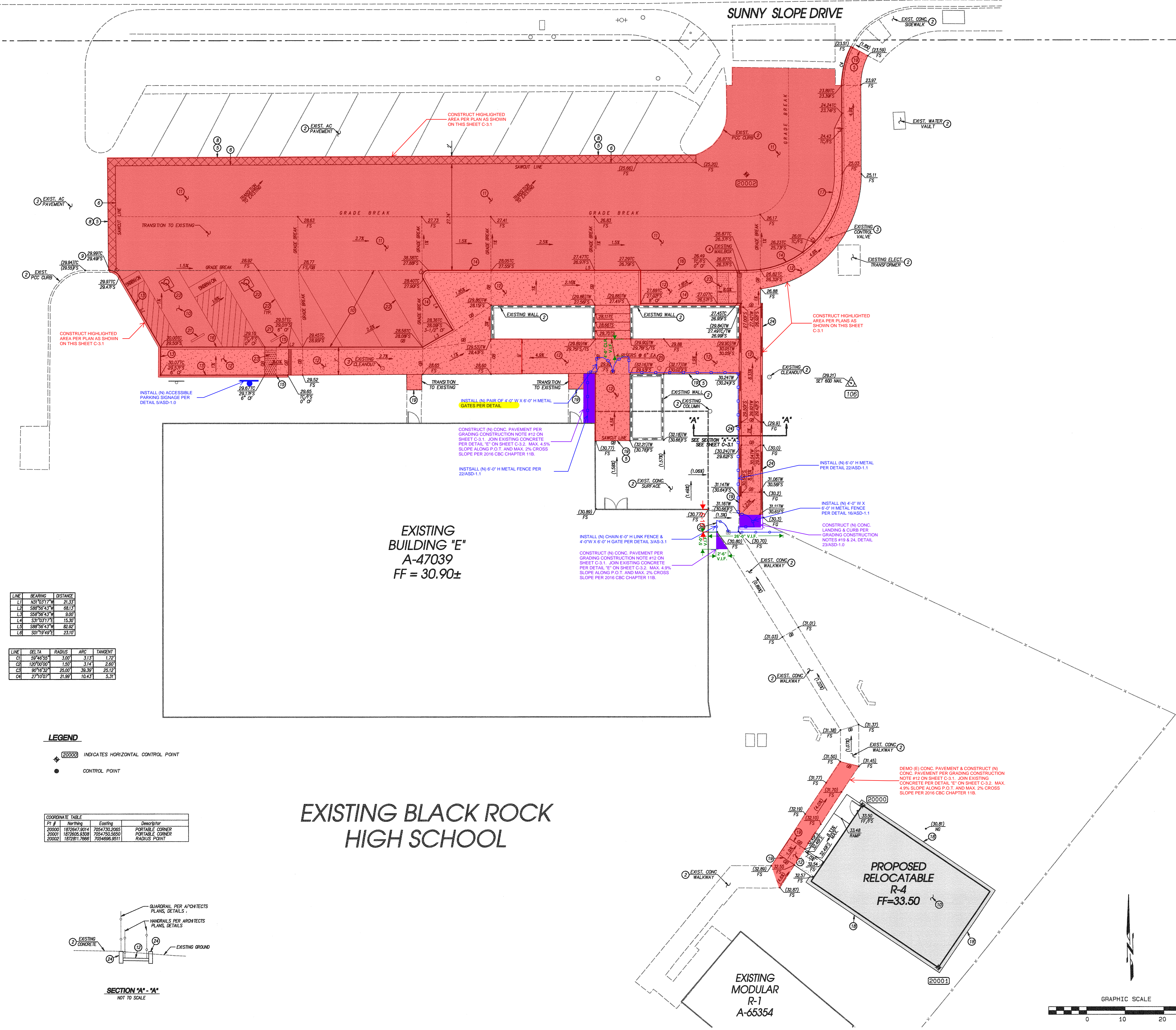
PART 3 - EXECUTION - (NOT APPLICABLE TO THIS SECTION.)

END OF SECTION

SUNNY SLOPE DRIVE

GRADING CONSTRUCTION NOTES

- 1 REMOVE AND DISPOSE OF SPECIFIED ITEM
- 2 PROTECT IN PLACE SPECIFIED ITEM
- 3 ADJUST EXISTING ITEM TO PROPOSED FINISHED GRADE
- 4 REMOVE/RELOCATE SPECIFIED ITEM PER APPROPRIATE CONSULTANTS PLAN
- 5 JOIN PROPOSED SURFACE TO EXISTING SURFACE WITH FLUSH TRANSITION, MATCH GRADE
- 6 SAWCUT, REMOVE AND DISPOSE OF EXISTING AC PAVEMENT
- 7 SAWCUT, REMOVE AND DISPOSE OF PCC SURFACE
- 8 GOLD PLANE GRIND & OVERLAY EXISTING ASPHALT SURFACE 2" MINIMUM
- 9 JOIN AND MATCH EXISTING CURB WITH EXISTING CURB AND/OR GUTTER
- 10 JOIN AND MATCH EXISTING CURB WITH EXISTING CURB AND/OR GUTTER
- 11 CONSTRUCT 2 1/2" A.C. PAVING OVER COMPACTED BASE MATERIAL
- 12 CONSTRUCT 3.0" A.C. PAVING OVER COMPACTED BASE MATERIAL
- 13 CONSTRUCT 4" PCC (520-C-2500) WITH FS BARS 1/2" CENTER TO CENTER IN BOTH DIRECTIONS NATIVE WITH THICKENED EDGE PER DETAIL "A" ON SHEET C-3.2, SEE PAVING PERFORM, DEMO, AND FINISH PER ARCHITECTS PLANS AND SPECIFICATIONS
- 14 CONSTRUCT 6" PCC CURB ONLY PER SPPWC STANDARD PLAN 120-2 TYPE A1-8
- 15 CONSTRUCT 6" PCC (520-C-2500) CURB TRANSITION PER DETAIL "B" ON SHEET C-3.2
- 16 CONSTRUCT 6" PCC (520-C-2500) CURB ONLY PER DETAIL "C" ON SHEET C-3.2
- 17 CONSTRUCT 6" ROLLED CURB AND TRANSITION PER DETAIL "D" ON SHEET C-3.2
- 18 CONSTRUCT REDWOOD HEADER PER DETAIL "E" ON SHEET C-3.2
- 19 JOIN EXISTING CONCRETE FLUSH PER DETAIL "E" ON SHEET C-3.2
- 20 FURNISH AND INSTALL SITE FENCING/RAILING/GATE PER ARCHITECTS PLANS & SPECS.
- 21 FURNISH & INSTALL PRECAST WHEEL STOP PER ARCHITECTS PLANS AND SPECS.
- 22 PAINT/APPLY/INSTALL ACCESS COMPLIANT PARKING LEGENDS, STRIPES AND SIGNS PER ARCHITECTS PLANS & SPECS.
- 23 FURNISH & INSTALL TRUNCATED DOME SURFACE & CONCRETE GROOVING BORDER PER ARCHITECTS PLANS, SPECS AND DETAILS.
- 24 CONSTRUCT DP RETAINING WALL PER ARCHITECTS PLANS AND SPECIFICATIONS
- 25 CONSTRUCT PCC STEPS AND HANDRAILS PER ARCHITECTS PLANS, DETAILS AND SPECS.



EXISTING BUILDING "E"
A-47039
FF = 30.90±

EXISTING BLACK ROCK
HIGH SCHOOL

PROPOSED RELOCATABLE
R-4
FF=33.50

EXISTING MODULAR
R-1
A-65354

LINE	BEARING	DISTANCE
L1	N31°03'17"W	21.33
L2	S89°56'43"W	68.13
L3	S58°56'43"W	8.00
L4	S31°03'17"E	15.30
L5	S89°56'43"W	82.82
L6	S01°12'49"E	23.10

LINE	DELTA	RADIUS	ARC	TANGENT
C1	59°48'55"	3.00	3.15	1.72
C2	122°00'00"	1.50	3.14	2.60
C3	80°16'32"	25.00	38.39	25.12
C4	27°10'07"	21.62	16.43	5.31

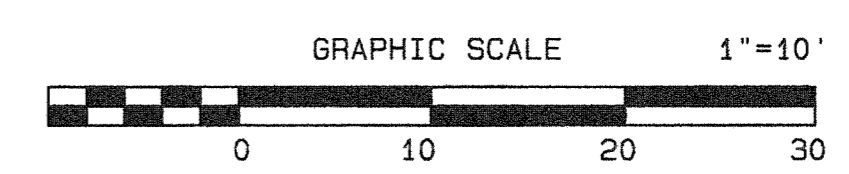
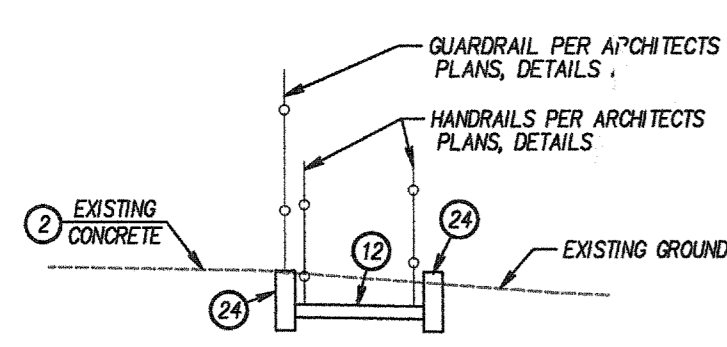
LEGEND

⊠ INDICATES HORIZONTAL CONTROL POINT

● CONTROL POINT

COORDINATE TABLE

PT #	Northing	Easting	Descriptor
20000	1872647.8014	7054730.2065	PORTABLE CORNER
20001	1872658.8398	7054730.5860	PORTABLE CORNER
20002	1872811.7688	7054688.9011	RADIUS POINT



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CIVIL ENGINEERING PLANNING
101 E. REDLANDS BOULEVARD
SUITE 146
REDLANDS, CA 92373

LAND SURVEYING
STATIONMASTER MANAGEMENT
TELE 909-792-9999
FAX 909-792-9999

PROFESSIONAL ARCHITECT
ROY D. MCCLAUG
6/25/2015
DATE:

36-119
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES

04-
AC PLS DS
DATE

DSA APPROVAL

APPROVALS

Drawn by	CAC	No.	DATE	BY	REMARKS
Checked by	TM				
Date	01/29/2013				
Commission No.	1-49-75				

RUHNAU RUHNAU CLARKE
ARCHITECTS PLANNERS
3775 Tenth Street Riverside, California 92501 TEL. (951) 684 4664 FAX. (951) 684 6276 RRCARCH.COM

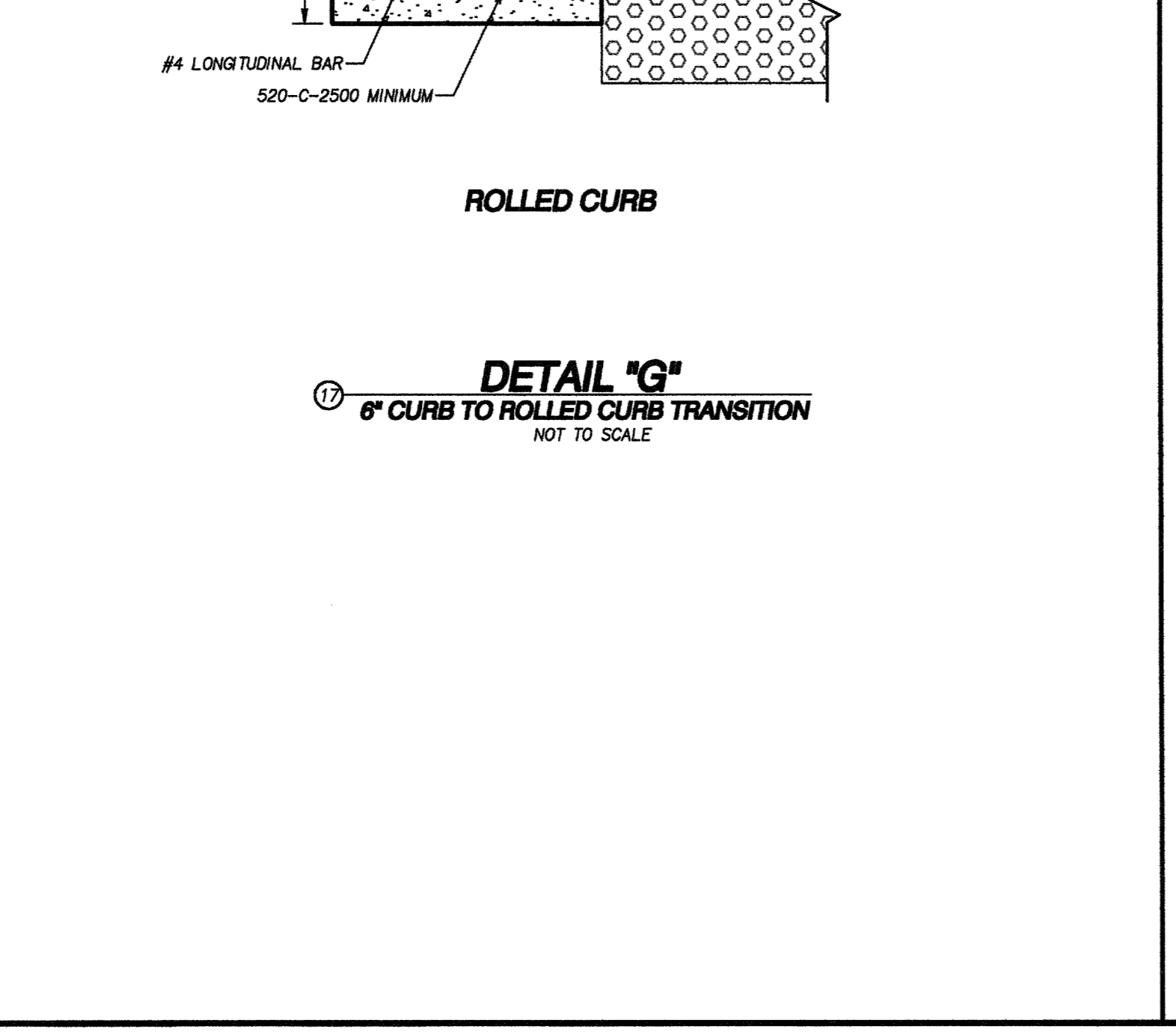
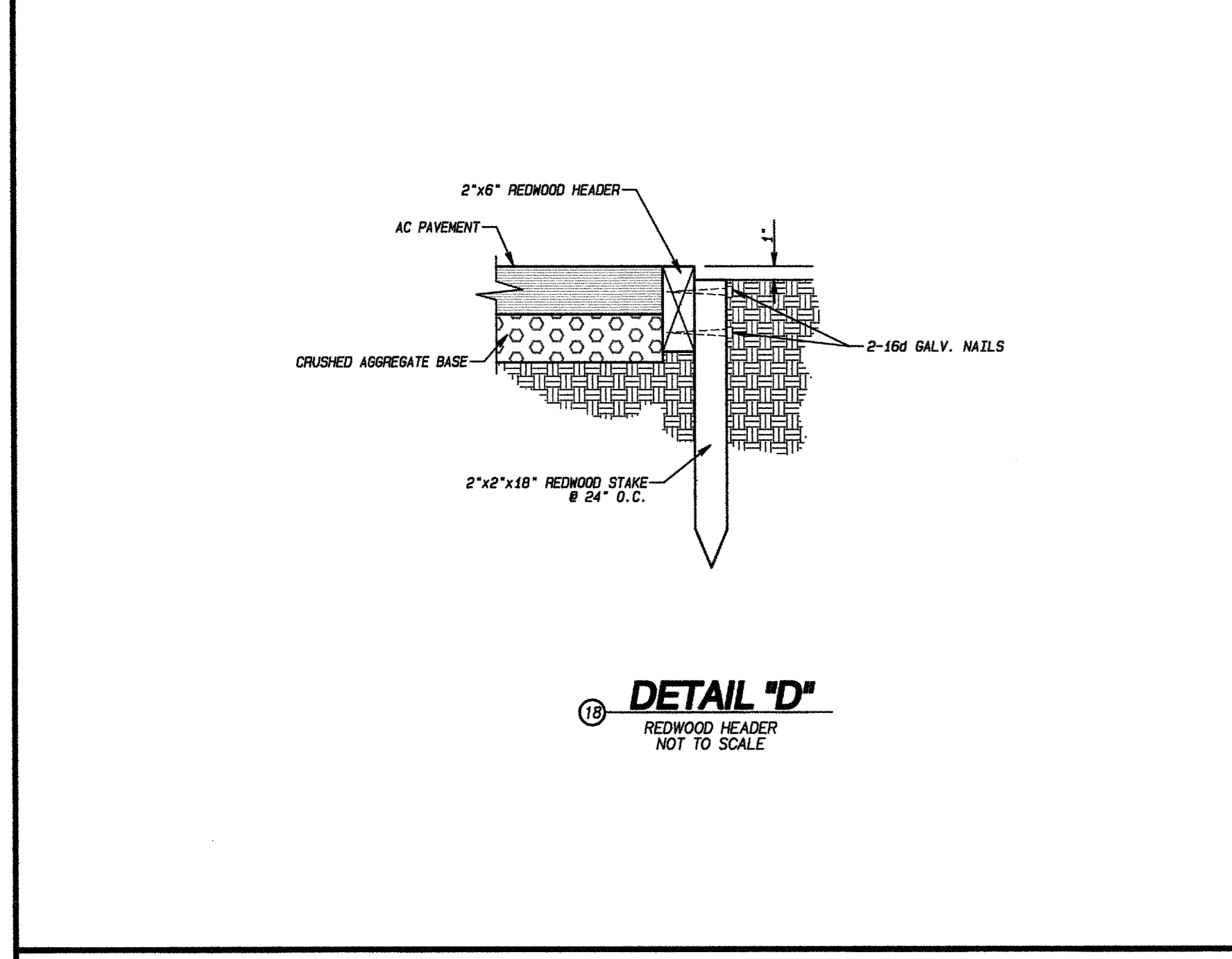
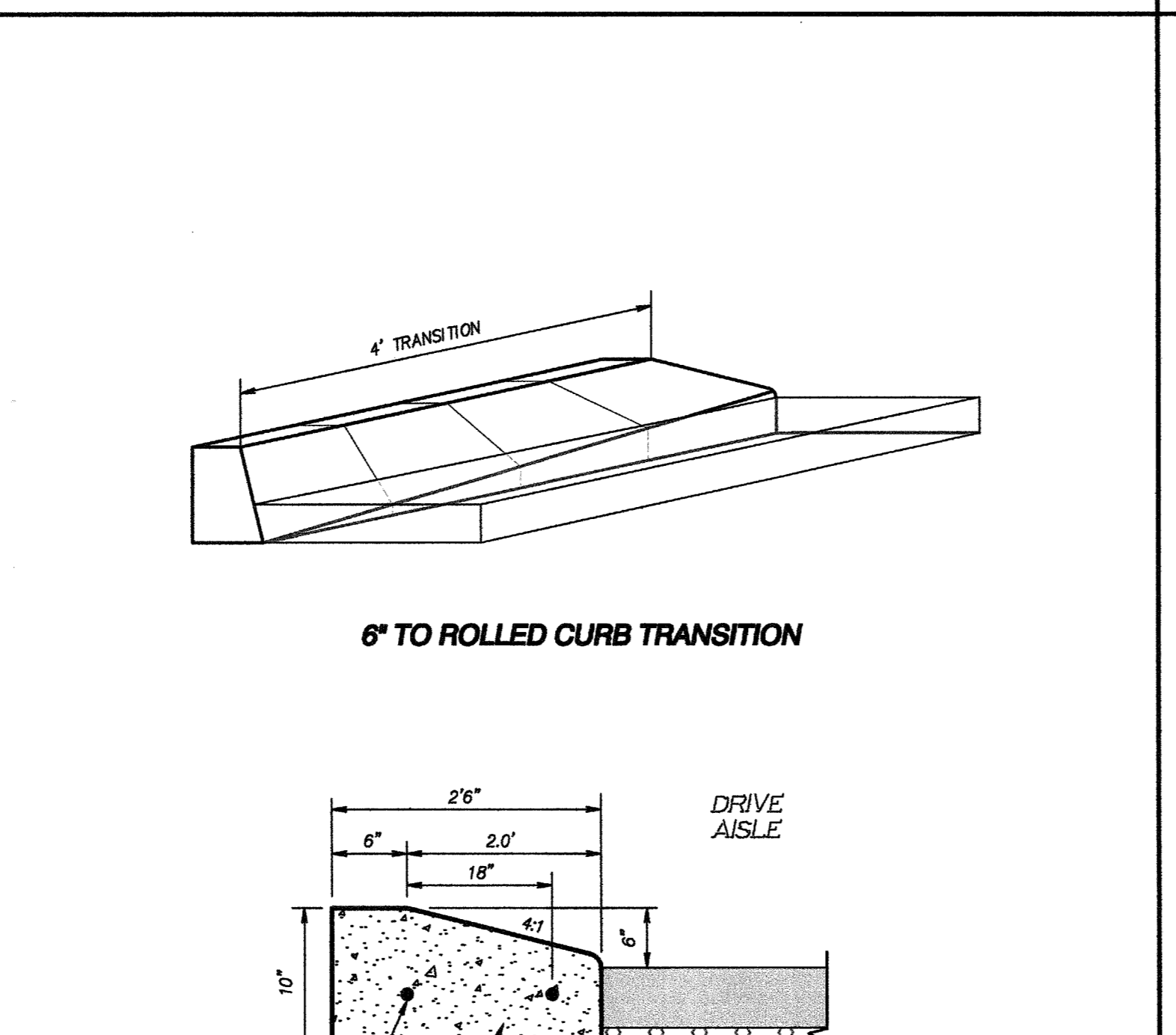
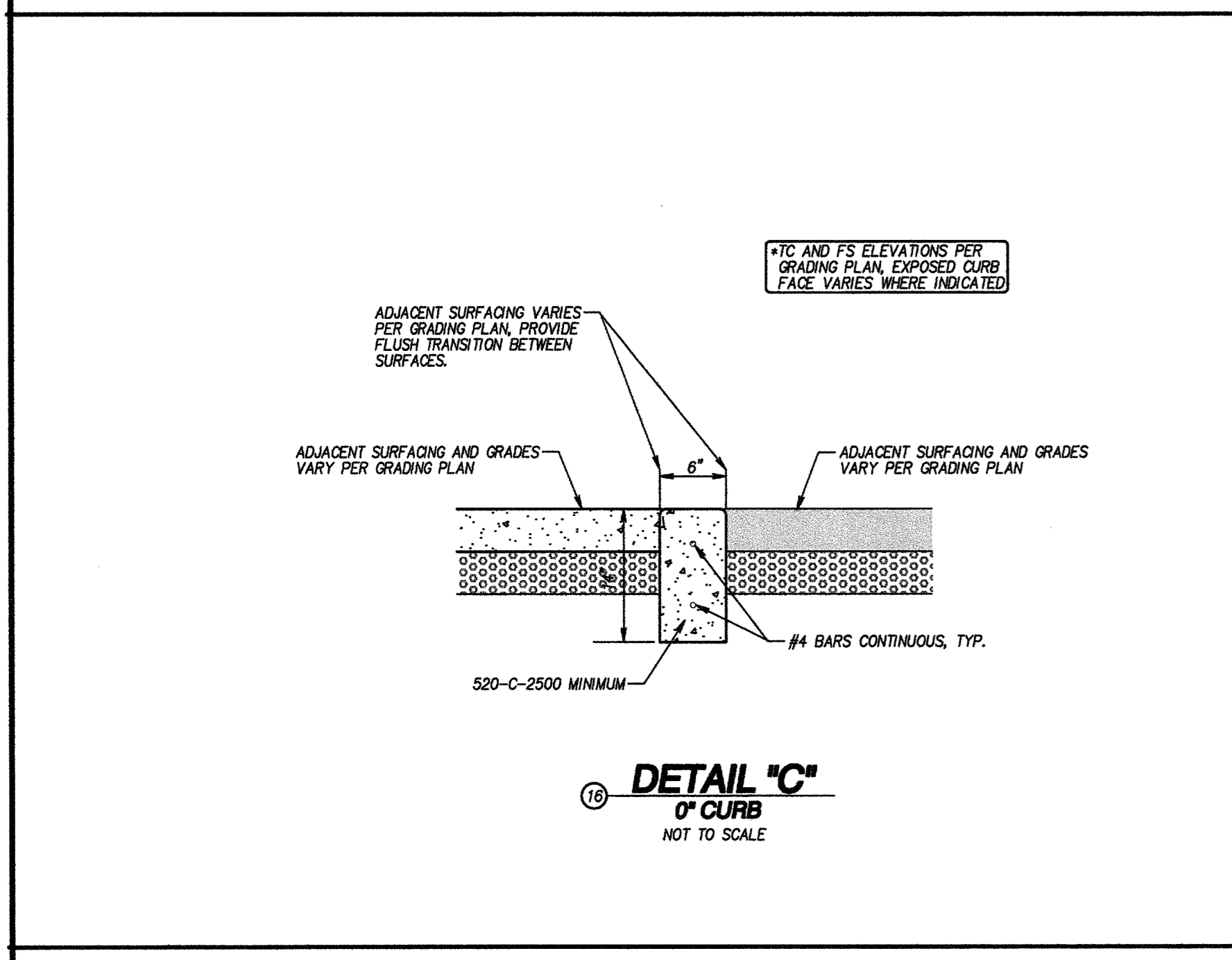
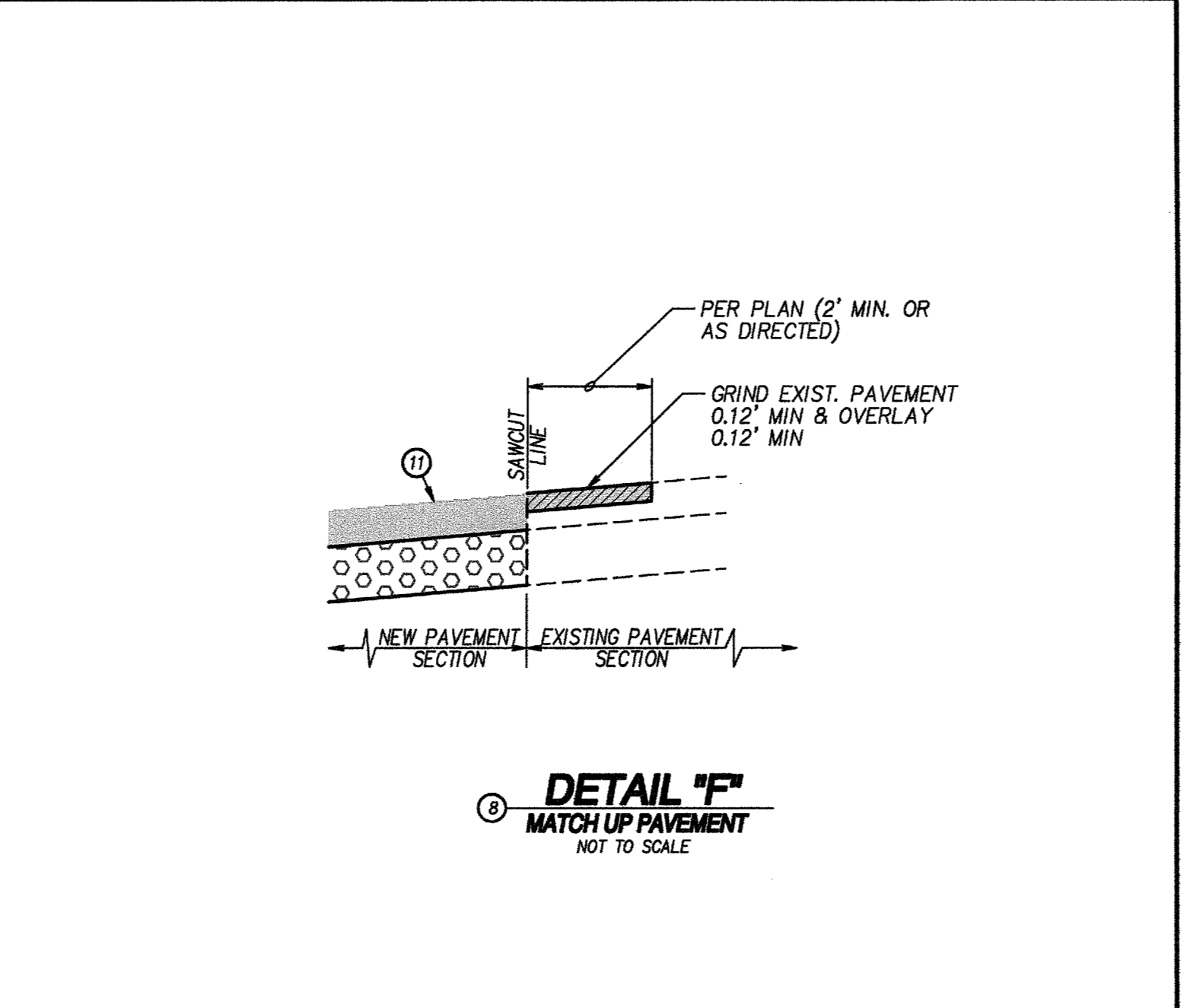
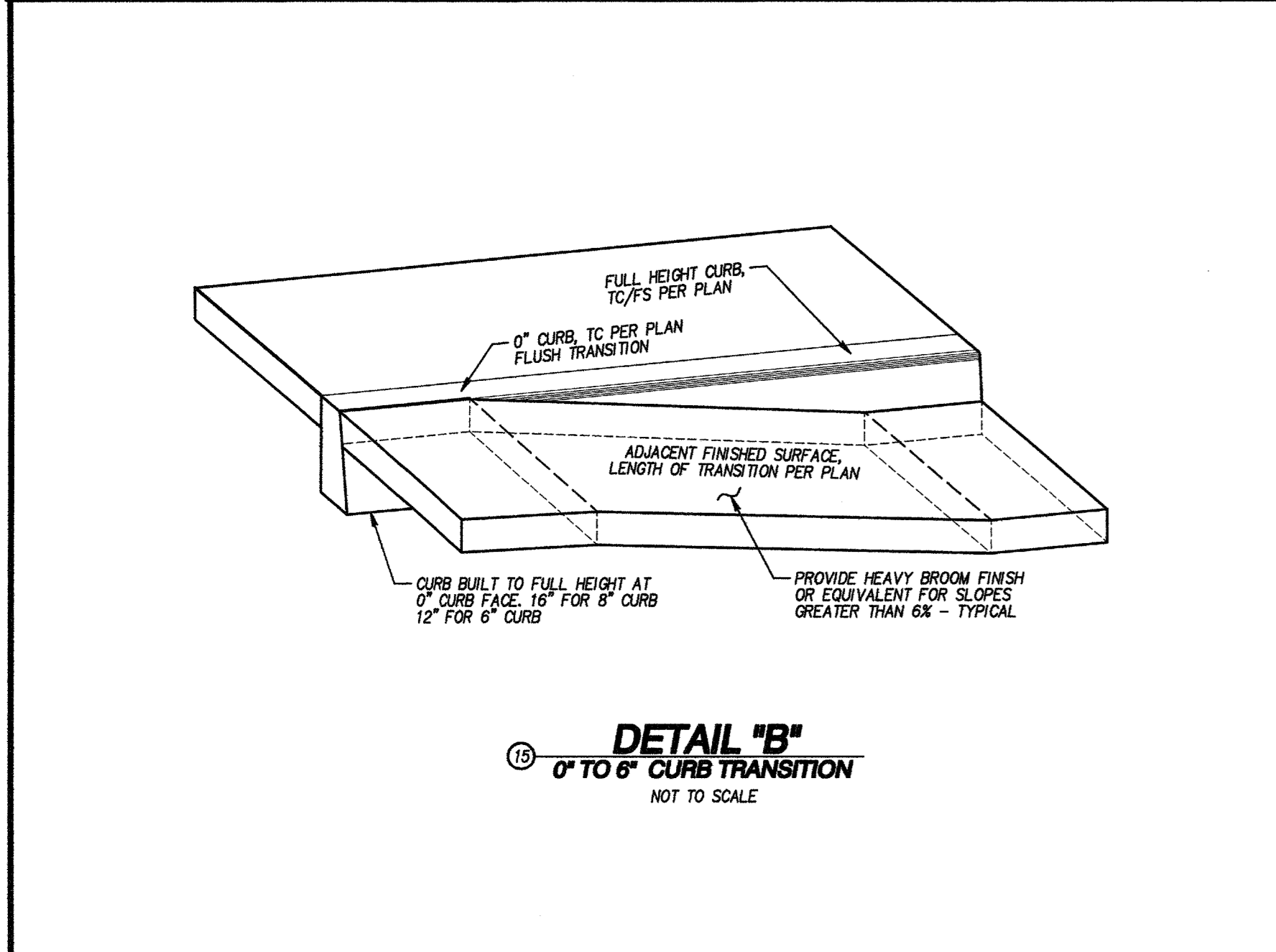
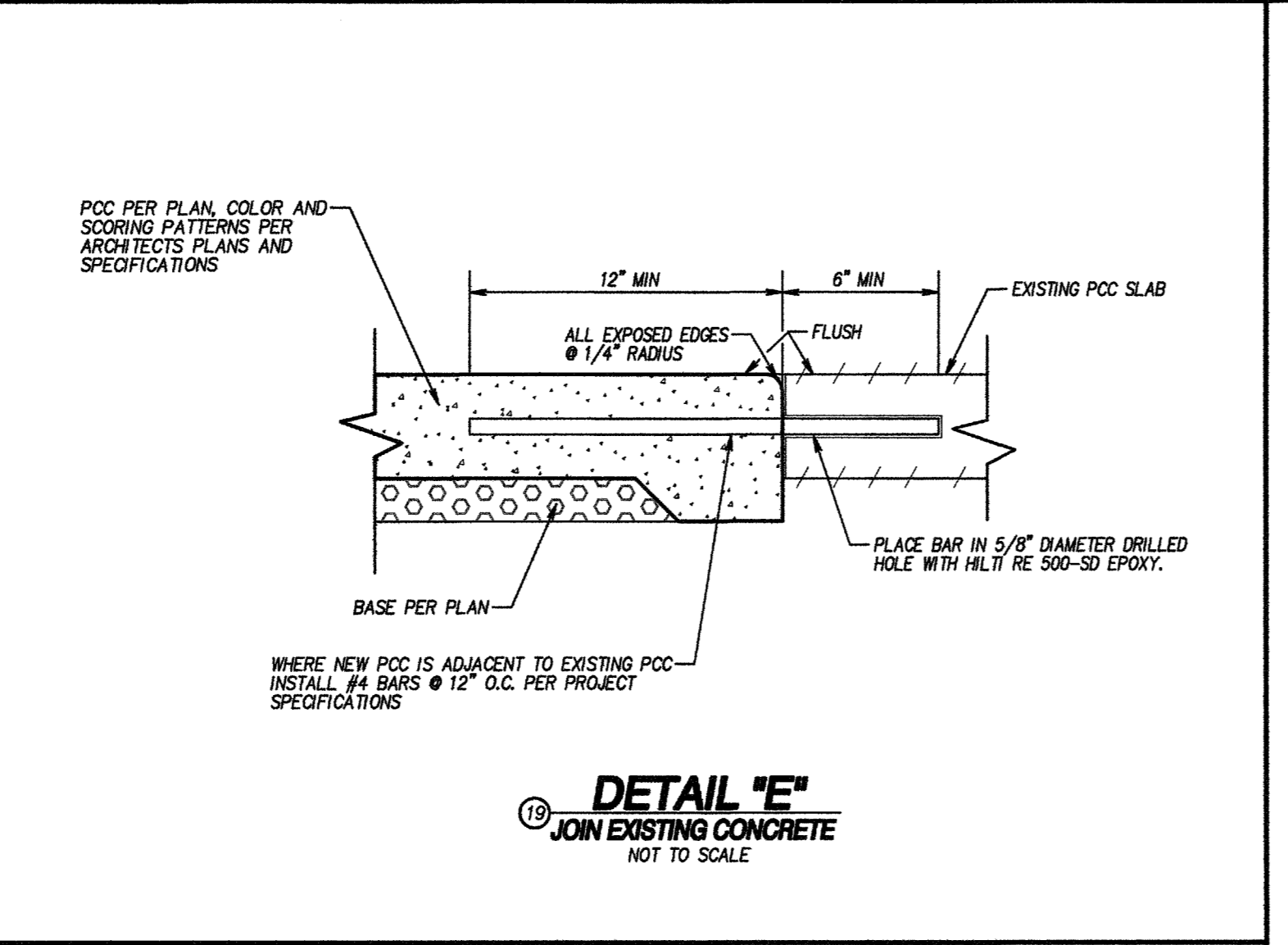
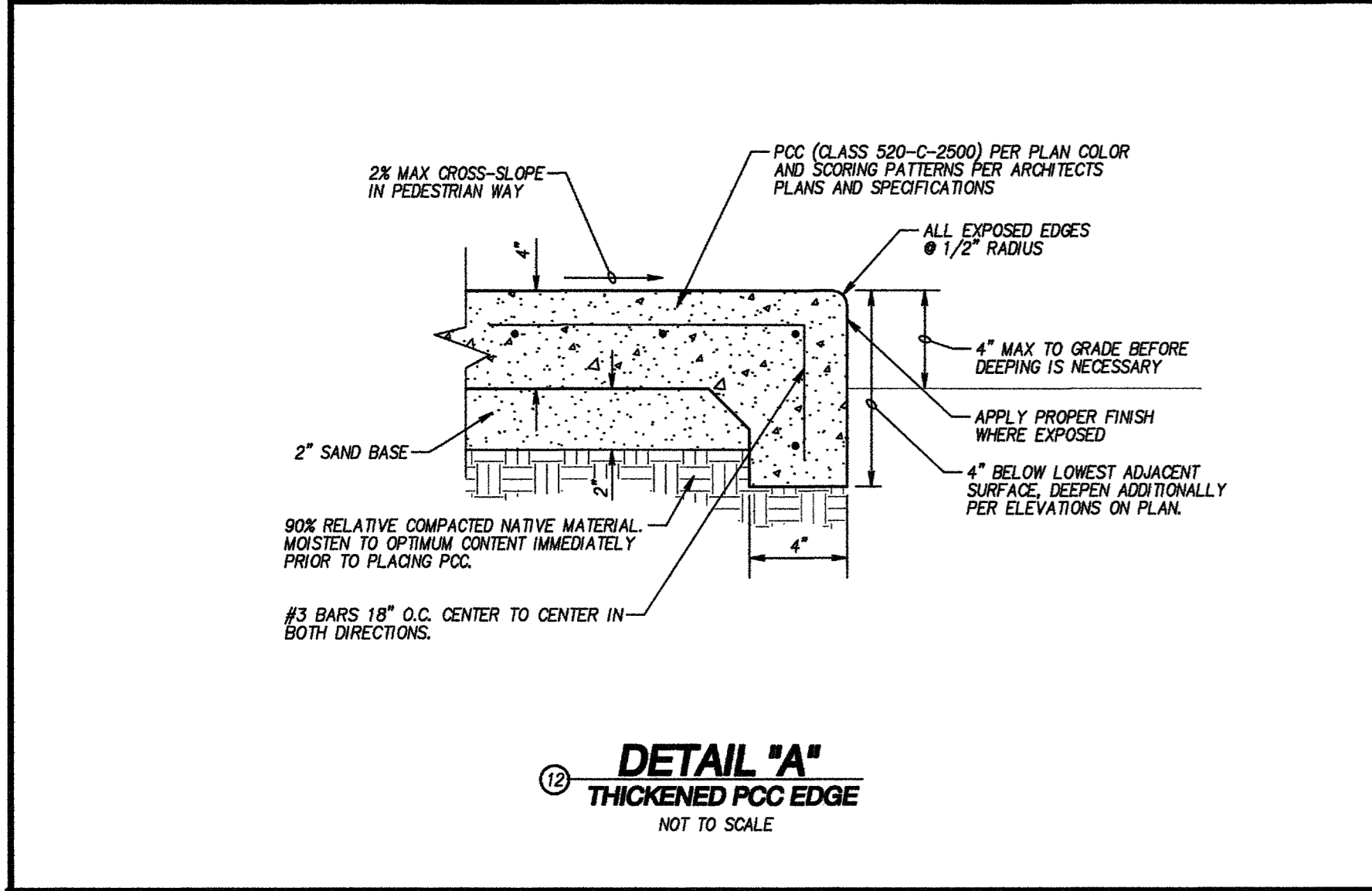
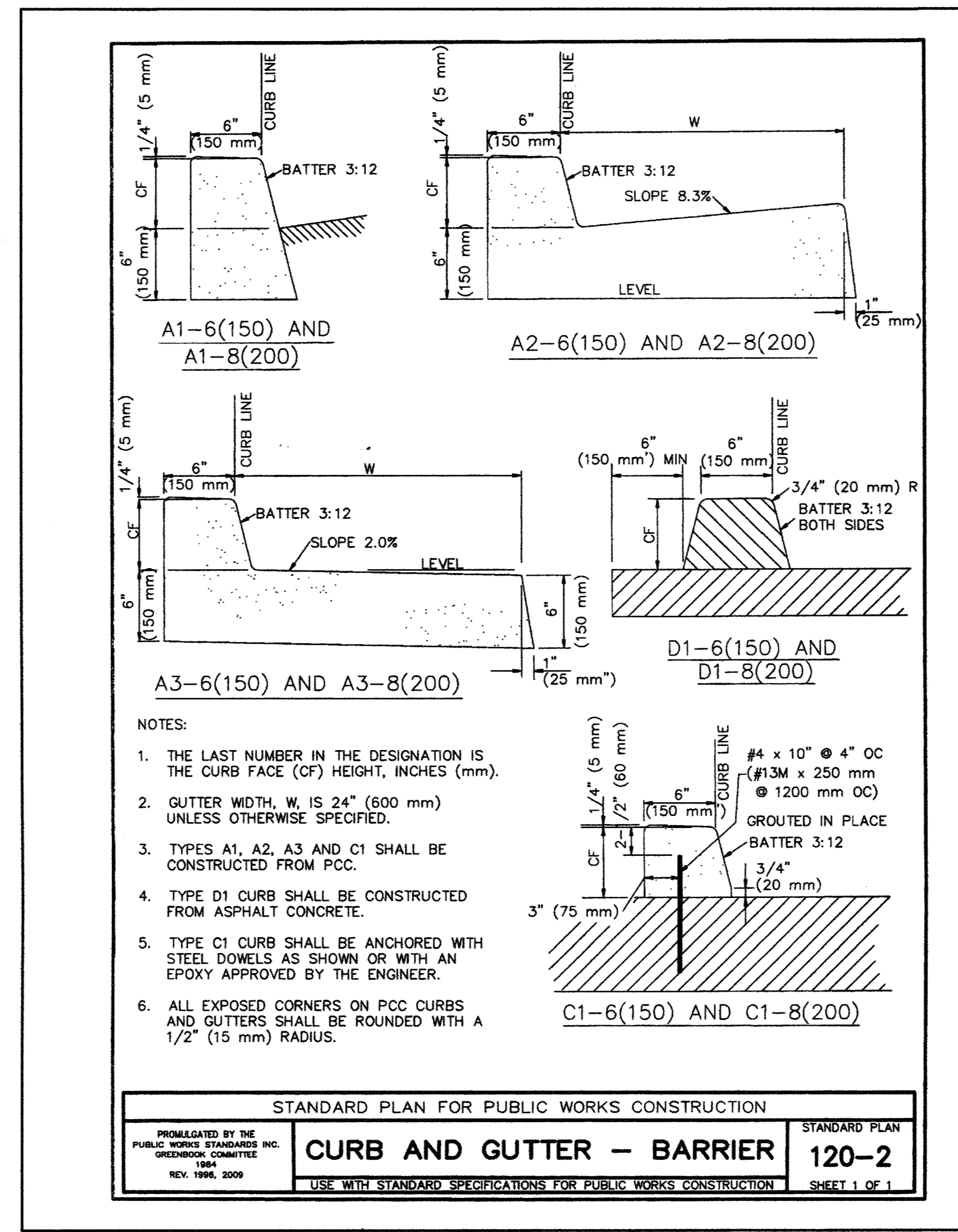
RELOCATION OF PORTABLE @ BLACK ROCK H.S.
MORONGO UNIFIED SCHOOL DISTRICT
YUCCA VALLEY, CA

PRECISE GRADING PLAN
Sheet Number
C-3.1
3 of 4 Sheets

ALTERNATE NO. 1

GRADING CONSTRUCTION NOTES

- 1 REMOVE AND DISPOSE OF SPECIFIED ITEM
- 2 PROTECT IN PLACE SPECIFIED ITEM
- 3 ADJUST EXISTING ITEM TO PROPOSED FINISHED GRADE
- 4 REMOVE/RELOCATE SPECIFIED ITEM PER APPROPRIATE CONSULTANTS PLAN
- 5 JOIN PROPOSED SURFACE TO EXISTING SURFACE WITH FLUSH TRANSITION, MATCH GRADE
- 6 SAWCUT, REMOVE AND DISPOSE OF EXISTING AC PAVEMENT
- 7 SAWCUT, REMOVE AND DISPOSE OF PCC SURFACE
- 8 COLD PLANE GRIND & OVERLAY EXISTING ASPHALT SURFACE 2" MINIMUM
- 9 JOIN AND MATCH EXISTING CURB WITH EXISTING CURB AND/OR GUTTER
- 10 CONSTRUCT 2 1/2" A.C. PAVING OVER COMPACTED BASE MATERIAL, 2-1/2" THICK MIN.
- 11 CONSTRUCT 3.0" A.C. PAVING OVER COMPACTED BASE MATERIAL, 2-1/2" THICK MIN.
- 12 CONSTRUCT 4" PCC (520-C-2500) WITH #3 BARS 18" CENTER TO CENTER IN BOTH DIRECTIONS WITH 1/4" THICK EDGES PER DETAIL "A" ON SHEET C-3.2. **SCORING PATTERNS - COLOR AND FINISH PER ARCHITECTS PLANS AND SPECIFICATIONS**
- 13 CONSTRUCT 6" PCC CURB ONLY PER SPPWC STANDARD PLAN 120-2 TYPE A1-6
- 14 CONSTRUCT 8" PCC CURB ONLY PER SPPWC STANDARD PLAN 120-2 TYPE A1-8
- 15 CONSTRUCT 0" TO 6" PCC (520-C-2500) CURB TRANSITION PER DETAIL "B" ON SHEET C-3.2
- 16 CONSTRUCT 0" PCC (520-C-2500) CURB ONLY PER DETAIL "C" ON SHEET C-3.2
- 17 CONSTRUCT 6" ROLLED CURB AND TRANSITION PER DETAIL "E" ON SHEET C-3.2
- 18 CONSTRUCT REDWOOD HEADER PER DETAIL "D" ON SHEET C-3.2
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- 22 PAINT/APPLY/INSTALL ACCESS COMPLIANT PARKING LEGENDS, STRIPES AND SIGNS PER ARCHITECTS PLANS & SPECS.
- 23 FURNISH & INSTALL TRUNCATED DOME SURFACE & CONCRETE GROOVING BORDER PER ARCHITECTS PLANS, SPECS AND DETAILS.
- 24 CONSTRUCT CIP RETAINING WALL PER ARCHITECTS PLANS AND SPECIFICATIONS
- 25 CONSTRUCT PCC STEPS AND HANDRAILS PER ARCHITECTS PLANS, DETAILS AND SPECS.



IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 OFFICE OF REGULATION SERVICES
 04 11449
 JUN 7 8 2015

EPIC ENGINEERS
 CIVIL ENGINEERING PLANNING LAND SURVEYING
 101 E. REDLANDS BOULEVARD SUITE 148
 REDLANDS, CA 92373
 TEL: 909-792-9999 FAX: 909-792-9999

Troy M. Lang
 TROY D. MOLLRUG 6/25/2015 DATE:

36-H9
 IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 OFFICE OF REGULATION SERVICES
 04-
 AC PLS SS
 DATE

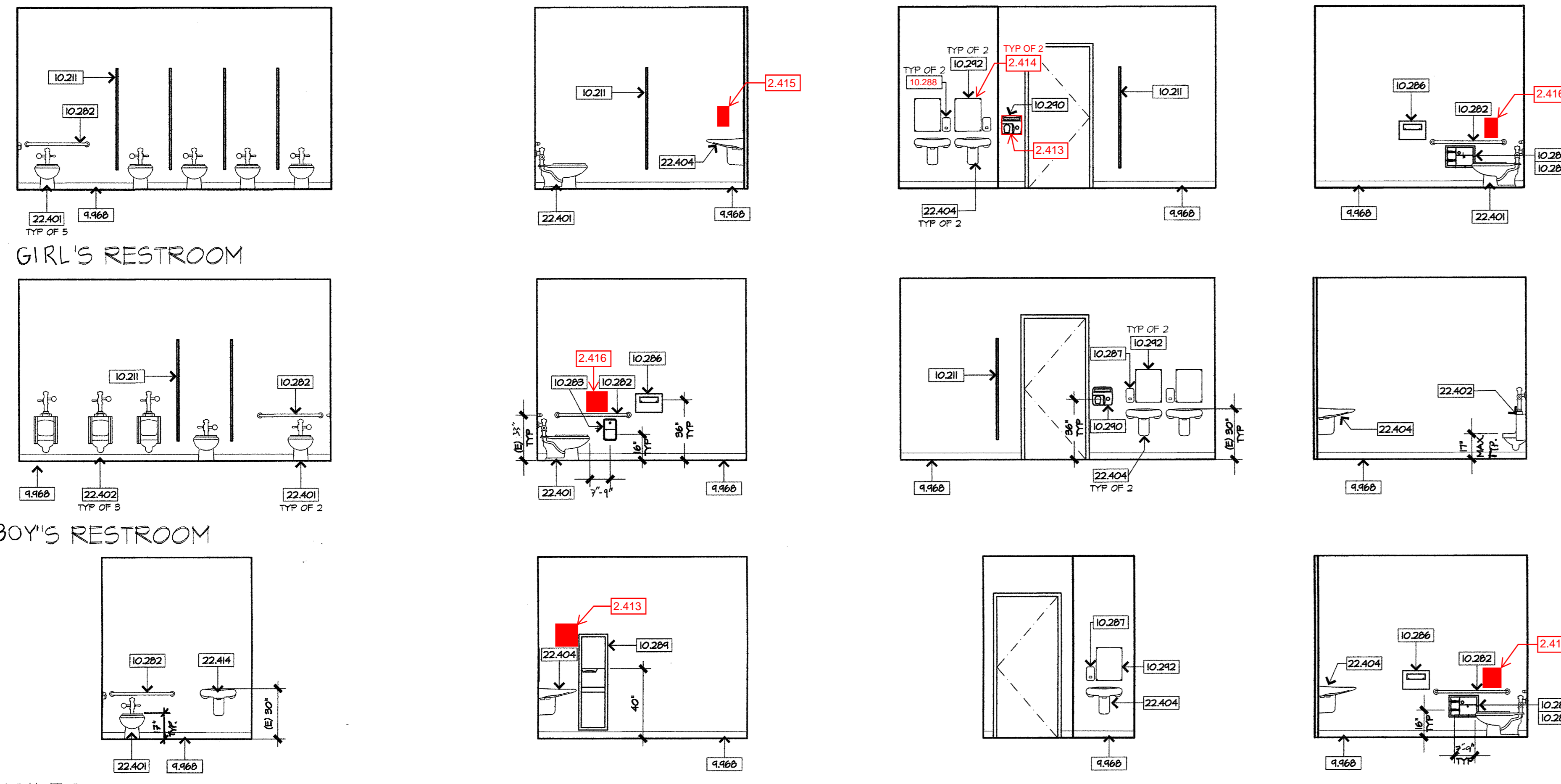
DSA APPROVAL

Drawn by	CAC	No.	DATE	BY	REMARKS
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Date	01/29/2015				
Commission No.	1-49-75				

RUHNAU RUHNAU CLARKE
 ARCHITECTS PLANNERS
 3775 Tenth Street Riverside, California 92501 TEL. (951) 684-4664 FAX. (951) 684-6276 RRCARCH.COM

RELOCATION OF PORTABLE @ BLACK ROCK H.S.
 MORONGO UNIFIED SCHOOL DISTRICT
 YUCCA VALLEY, CA

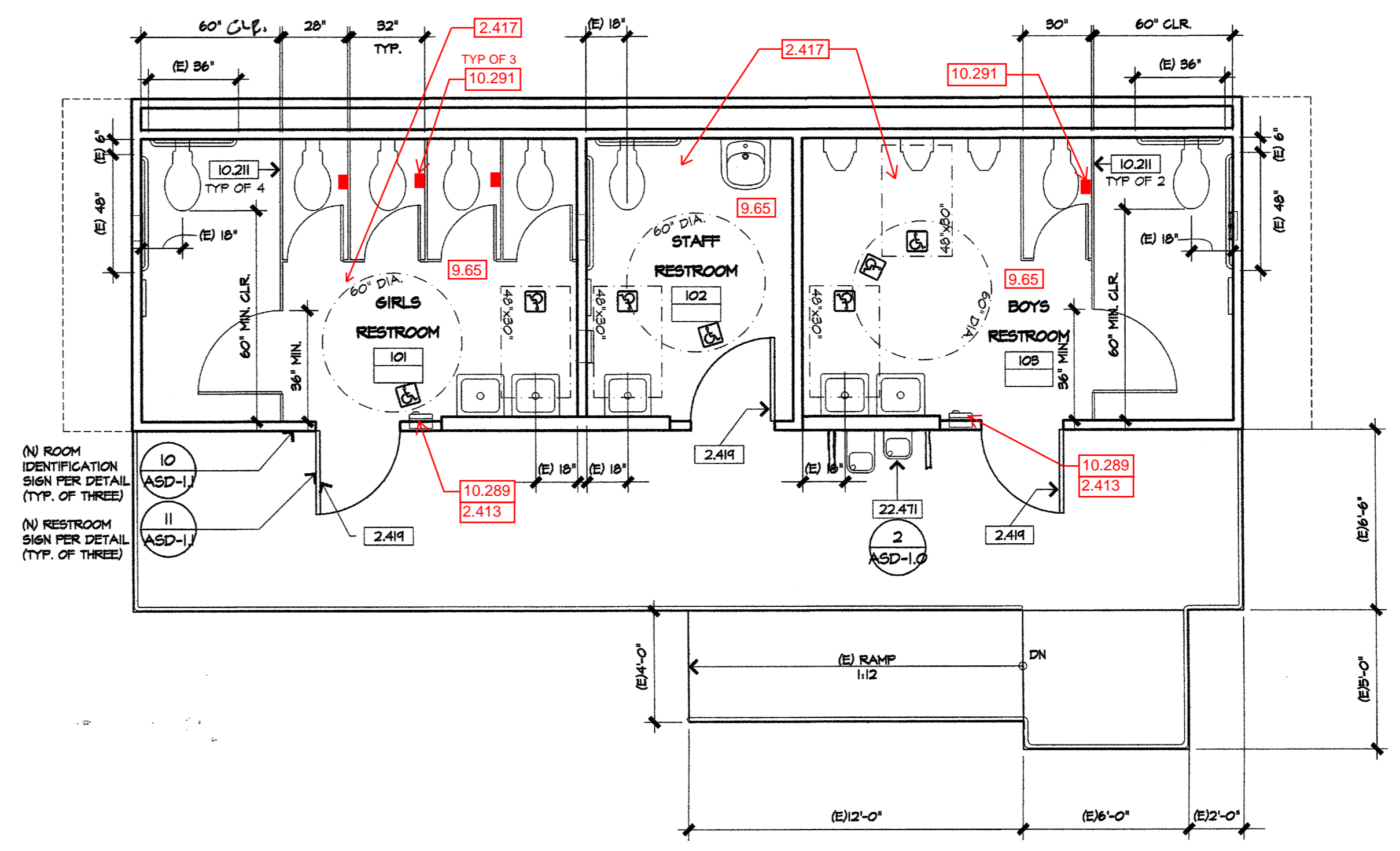
GRADING DETAILS SHEET
 Sheet Number
C-3.2
 4 of 4 sheets



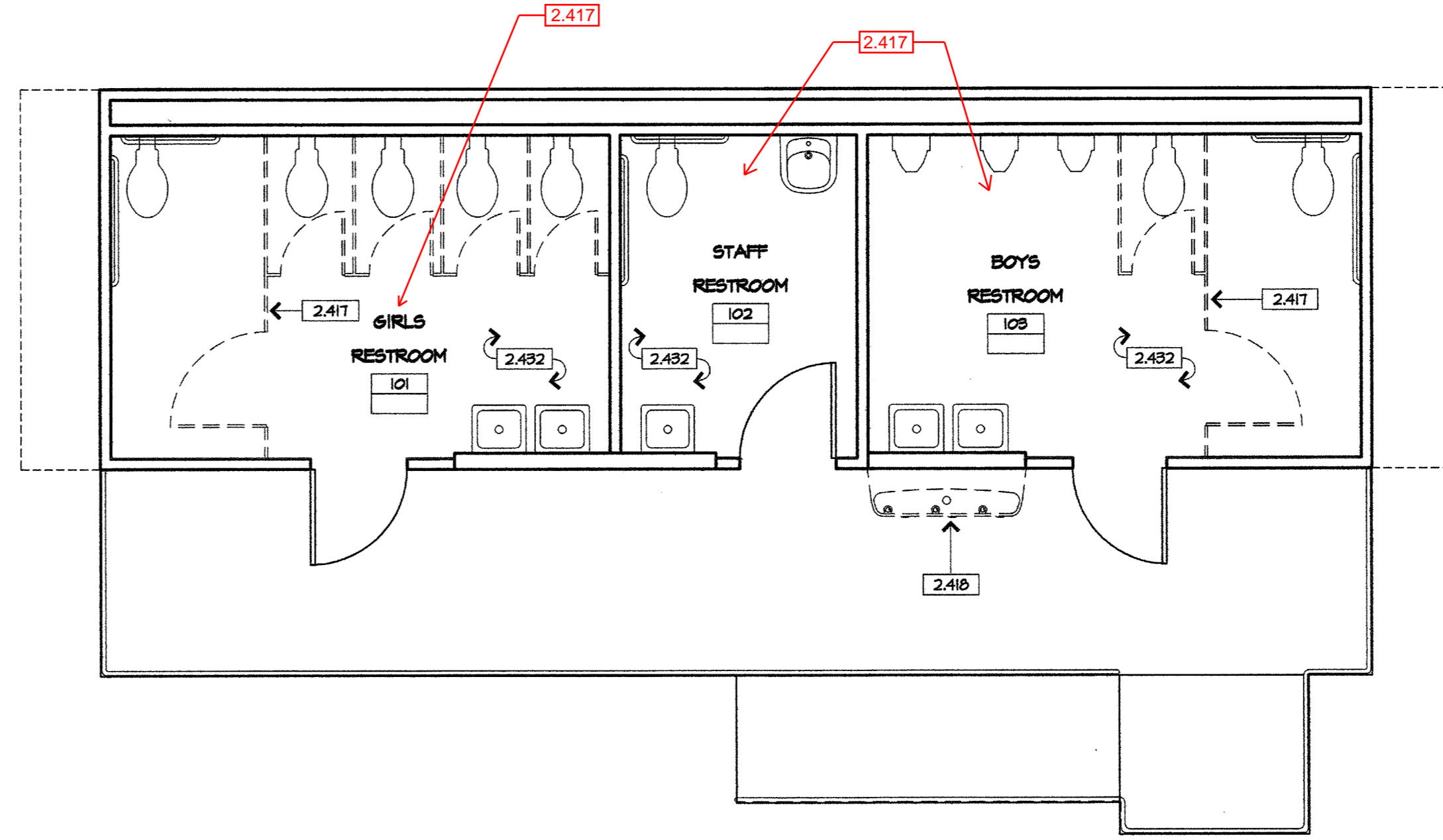
GIRL'S RESTROOM

BOY'S RESTROOM

TOILET



ENLARGED RESTROOM PLAN



ENLARGED RESTROOM DEMOLITION PLAN

RESTROOM RELOC ROOM FINISH SCHEDULE																									
ROOM No.	ROOM NAME	FLOOR		BASE		WAINSCOT		ELEVATION 1			ELEVATION 2			ELEVATION 3			ELEVATION 4			CELLINGS				REMARKS	
		MATERIAL	COLOR	MATERIAL	COLOR	MATERIAL	COLOR	HEIGHT	MATERIAL	FINISH	COLOR	MATERIAL	FINISH	COLOR	MATERIAL	FINISH	COLOR	MATERIAL	FINISH	COLOR	HEIGHT	HEIGHT			
101	GIRLS RESTROOM	VSF	-	VSF	-	-	-	-	(E) FRP	-	-	(E) FRP	-	-	(E) FRP	-	-	(E) FRP	-	-	ACP	-	-	8'-0"	CEILING: REPLACE (E) ACP PANELS ONLY.
102	STAFF RESTROOM	VSF	-	VSF	-	-	-	-	(E) FRP	-	-	(E) FRP	-	-	(E) FRP	-	-	(E) FRP	-	-	ACP	-	-	8'-0"	-
103	BOYS RESTROOM	VSF	-	VSF	-	-	-	-	(E) FRP	-	-	(E) FRP	-	-	(E) FRP	-	-	(E) FRP	-	-	ACP	-	-	8'-0"	-

ROOM FINISH SCHEDULE

- NEW CONSTRUCTION KEYNOTES**
- 02 - EXISTING CONDITIONS
 - 2.417 DEMO (E) TOILET PARTITION
 - 2.418 DEMO (E) DRINKING FOUNTAIN PATCH & REPAIR EXISTING WALL FINISH
 - 2.419 (E) DOOR TO REMAIN
 - 2.452 REMOVE (E) VINYL FLOOR & PREP FOR NEW RESILIENT SHEET FLOORING
 - 04 FINISHES
 - 4.960 (N) RUBBER BASE
 - 10 SPECIALTIES
 - 10.251 (N) TOILET PARTITION
 - 10.252 (E) GRAB BAR
 - 10.253 (N) TOILET PAPER DISPENSER BOBRICK B-3888
 - 10.255 (N) SANITARY NAPKIN DISPOSAL BOBRICK B-270
 - 10.256 (N) TOILET SEAT COVER DISPENSER BOBRICK B-221
 - 10.254 (N) SOAP DISPENSER TO REMAIN
 - 10.254 (N) PAPER TOWEL DISPENSER / WASTE RECEPTACLE 12" BELOW BOBRICK B-262 & B-35643
 - 10.252 (E) GLASS MIRROR TO REMAIN
 - 10.252 (E) GLASS MIRROR TO REMAIN
 - 22 - PLUMBING
 - 22.401 (E) WATER CLOSET TO REMAIN
 - 22.402 (E) URINAL TO REMAIN
 - 22.404 (E) LAVATORY TO REMAIN
 - 22.414 (E) MOP SINK TO REMAIN
 - 22.471 (N) DRINKING FOUNTAIN ADA HI-LO HAWS 1085

KEYNOTES	-	1
----------	---	---

- 2.413 REMOVE (E) PAPER TOWEL DISPENSER & RETURN TO DISTRICT
 - 2.414 REMOVE (E) MIRROR & RETURN TO DISTRICT
 - 2.415 REMOVE (E) SOAP DISPENSER & RETURN TO DISTRICT
 - 2.416 REMOVE (E) TOILET PAPER DISPENSER & RETURN TO DISTRICT
 - 2.417 REMOVE ALL ACOUSTICAL CEILING TILE AND REPLACE WITH (N) ACOUSTICAL CEILING TILE ARMSTRONG 673
 - 9.65 INSTALL (N) RESILIENT SHEET FLOORING PER SPEC SEC. 09 65 80
 - 10.288 (N) SOAP DISPENSER BOBRICK B-2111
 - 10.291 REMOVE (E) TOILET PAPER DISPENSER FROM DEMO TOILET PARTITIONS & REINSTALL ON (N) PARTITIONS
- NOTE: ALL PLUMBING FIXTURES AND ACCESSORIES TO BE INSTALLED PER 2016 CBC CHAPTER 11B.

CONSULTANT

DSA APPROVAL

APPROVALS

No.	DATE	BY	REMARKS

Commission No. 1-49-75

RUHNAURUHNAUCLARKE
ARCHITECTS PLANNERS
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RELOCATION OF PORTABLE @ BLACK ROCK H.S.
MORONGO UNIFIED SCHOOL DISTRICT
YUCCA VALLEY, CA

ENLARGED RESTROOM PLANS
Sheet Number
AS-3.2
Of Sheets

ALTERNATE NO. 1

<p>CHAIN LINK FENCE 1/2"=1'-0" 25</p>	<p>HANDRAIL 1/2"=1'-0" 20</p>	<p>PASSENGER DROP OFF SIGN 2'-1/2"=0" 15</p>	<p>CHAIN LINK GATE WITH PANIC 3/4"=1'-0" 10</p>	<p>ACCESSIBLE PARKING SIGN 1/2"=1'-0" 5</p>	<p>NON-ALCOVE ACCESSIBLE D.F. 1/2"=1'-0" 1</p>
<p>STAIR NOSING 3/4"=1'-0" 26</p>	<p>TYP. CONC. RAMP FOOTING 1'-1/2"=0" 21</p>	<p>CURB DETAIL 1/2"=1'-0" 16</p>	<p>FENCE POST FOOTING 3/4"=1'-0" 11</p>	<p>UNAUTHORIZED VEHICLE SIGN 1/2"=1'-0" 6</p>	<p>WARNING RAIL @ D.F. 3/4"=1'-0" 2</p>
<p>CONCRETE CURB @ GUARDRAIL 1"=1'-0" 27</p>	<p>CONCRETE CURB @ RAMP 1"=1'-0" 22</p>	<p>CURB DETAIL 1/2"=1'-0" 17</p>	<p>CONCRETE JOINTS NTS 12</p>	<p>ISA PAVEMENT SIGN 3/4"=1'-0" 7</p>	<p>CURB-CUT RAMP 1/2"=1'-0" 3</p>
<p>CONCRETE CURB 1/2"=1'-0" 28</p>	<p>CONCRETE CURB @ STAIR/RAMP 1"=1'-0" 23</p>	<p>CHAIN LINK GATE 1/4"=1'-0" 18</p>	<p>CONCRETE PAVING EDGE 1/2"=1'-0" 13</p>	<p>CONCRETE WHEEL STOP 3/4"=1'-0" 8</p>	<p>DETECTABLE WARNING SURFACE 1/2"=1'-0" 4</p>
<p>CONCRETE PAVING MOW STRIP 1-1/2"=1'-0" 29</p>	<p>STAIR HANDRAIL 1/2"=1'-0" 24</p>	<p>TYP. RAMP ELEVATION 1/4"=1'-0" 19</p>	<p>ACCESSIBLE PASSENGER LOADING ZONE 1/2"=1'-0" 14</p>	<p>(N) CONC. PAVING @ (E) CONC PAVING 1/2"=1'-0" 9</p>	<p>APPROVALS</p>

ALTERNATE NO. 1

No.	DATE	BY	REMARKS

Drawn by	
Checked by	KES
Date	
Commission No.	1-49-75

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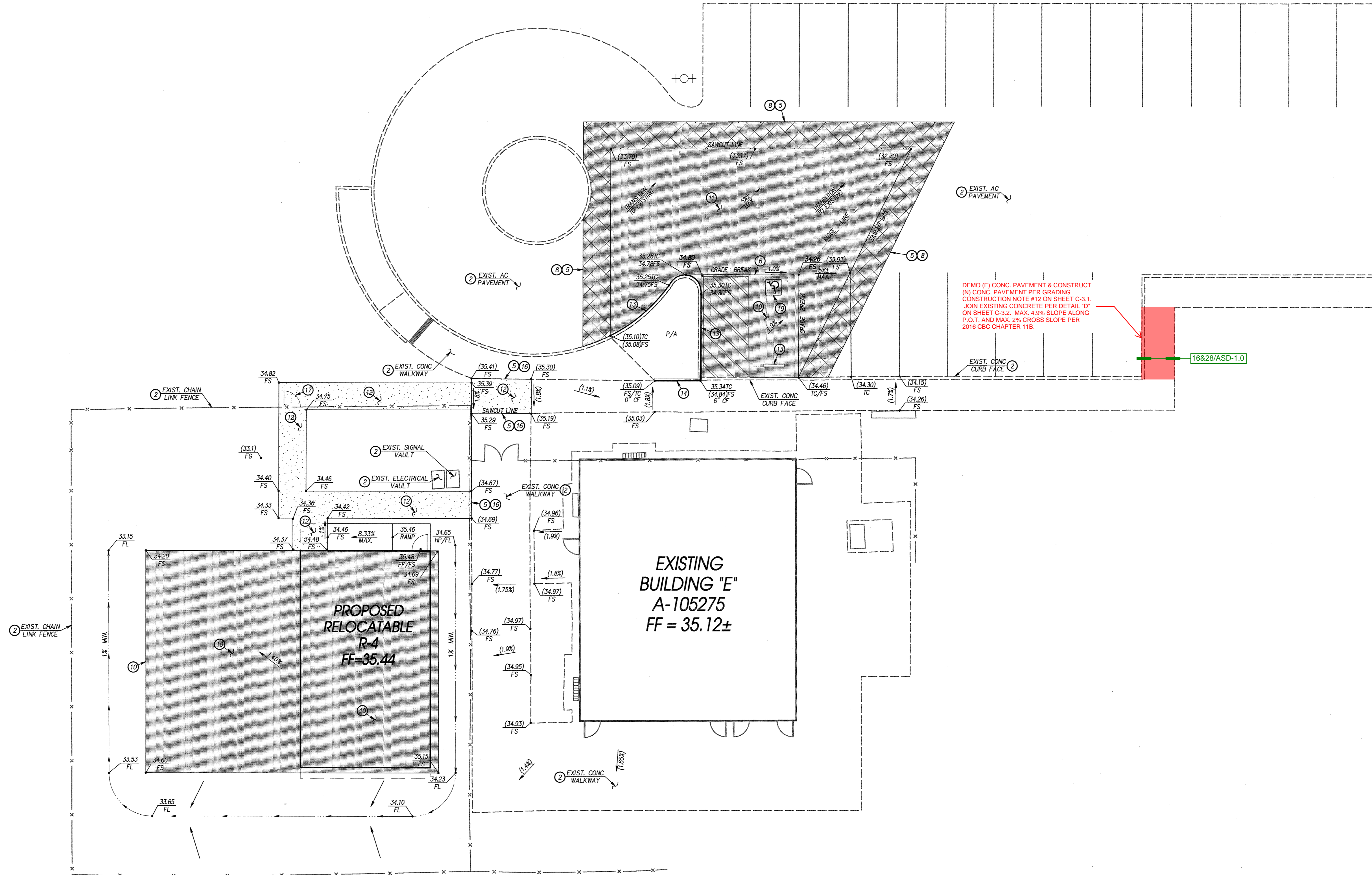
RELOCATION OF PORTABLE @ BLACK ROCK H.S.
MORONGO UNIFIED SCHOOL DISTRICT
YUCCA VALLEY, CA

SITE DETAILS
Sheet Number
ASD-10
Of Sheets

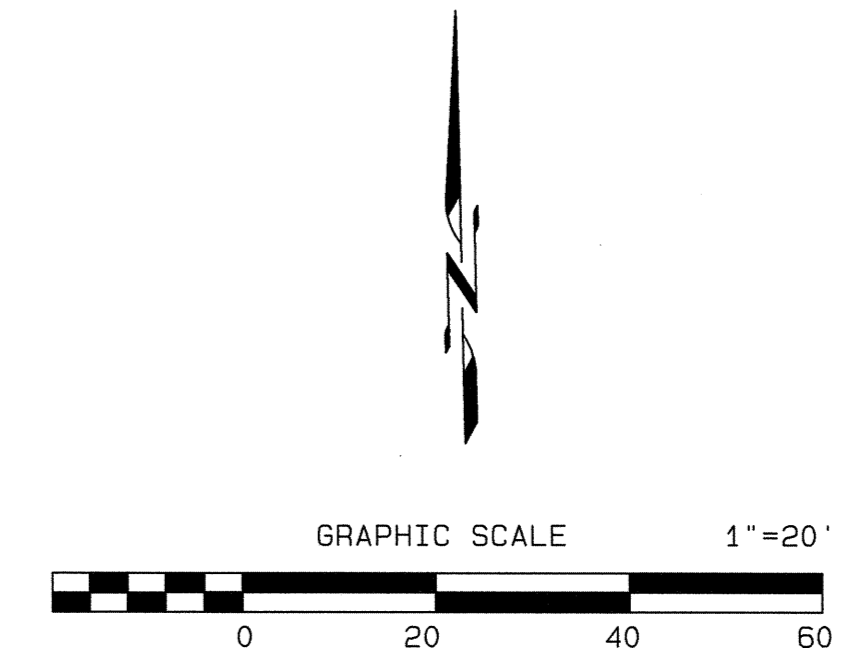
SUNNY SLOPE DRIVE

GRADING CONSTRUCTION NOTES

- 1 REMOVE AND DISPOSE OF SPECIFIED ITEM
- 2 PROTECT IN PLACE SPECIFIED ITEM
- 3 ADJUST EXISTING ITEM TO PROPOSED FINISHED GRADE
- 4 REMOVE/RELOCATE SPECIFIED ITEM PER APPROPRIATE CONSULTANT'S PLAN
- 5 JOIN PROPOSED SURFACE TO EXISTING SURFACE WITH FLUSH TRANSITION, MATCH GRADE
- 6 SAWCUT, REMOVE, AND DISPOSE OF EXISTING AC PAVEMENT
- 7 SAWCUT, REMOVE AND DISPOSE OF PCC SURFACE
- 8 COLD PLANE GRIND & OVERLAY EXISTING ASPHALT SURFACE 2" MINIMUM
- 9 JOIN AND MATCH EXISTING CURB WITH EXISTING CURB AND/OR GUTTER
- 10 CONSTRUCT 2 1/2" A.C. PAVING OVER COMPACTED BASE MATERIAL
- 11 CONSTRUCT 3.0" A.C. PAVING OVER COMPACTED BASE MATERIAL
- 12 CONSTRUCT 4" PCC (500-0-2500) WITH #3 BARS 18" CENTER TO CENTER IN BOTH DIRECTIONS NATIVE WITH THICKENED EDGE PER DETAIL "A" ON SHEET C-3.2. **3000PSI-PAVING, 3045PSI-AND-FINISH-PER-CONCRETE-PAVING-AND-SPECIFICATIONS**
- 13 CONSTRUCT 6" PCC CURB ONLY PER SPWPC STANDARD PLAN 150-2 TYPE AI-6
- 14 CONSTRUCT 0" TO 6" PCC (500-0-2500) CURB TRANSITION PER DETAIL "D" ON SHEET C-3.2
- 15 CONSTRUCT REDWOOD HEADER PER DETAIL "C" ON SHEET C-3.2
- 16 JOIN EXISTING CONCRETE FLUSH PER DETAIL "D" ON SHEET C-3.2
- 17 FURNISH AND INSTALL SITE FENCING/RAILING/GATE PER ARCHITECTS PLANS & SPECS.
- 18 FURNISH & INSTALL PRECAST WHEEL STOP PER ARCHITECTS PLANS AND SPECS.
- 19 PAINT/APPLY/INSTALL ACCESS COMPLIANT PARKING LEGENDS, STRIPES AND SIGNS PER ARCHITECTS PLANS & SPECS.



EXISTING ICE WEST HIGH SCHOOL



EPIC ENGINEERS CIVIL ENGINEERING AND SURVEYING PLANNING 101 E. REDLANDS BOULEVARD SUITE 140 REDLANDS, CA 92373 TEL: 909-792-8800 FAX: 909-792-8809		LICENSED ARCHITECT STATE OF CALIFORNIA No. C-99118 Exp. 4-30-17 D. MOL AUG
DATE: 7/15/2015		LICENSED ARCHITECT STATE OF CALIFORNIA No. C-99118 Exp. 4-30-17 D. MOL AUG
IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT OFFICE OF REGULATION SERVICES 04- AC _____ PLS _____ SS _____ DATE _____	IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT OFFICE OF REGULATION SERVICES 04 114502 NO. _____ PLS _____ SS _____ DATE 7/16/15	36-H9 IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT OFFICE OF REGULATION SERVICES 04 114502 NO. _____ PLS _____ SS _____ DATE 7/16/15
DSA APPROVAL		APPROVALS

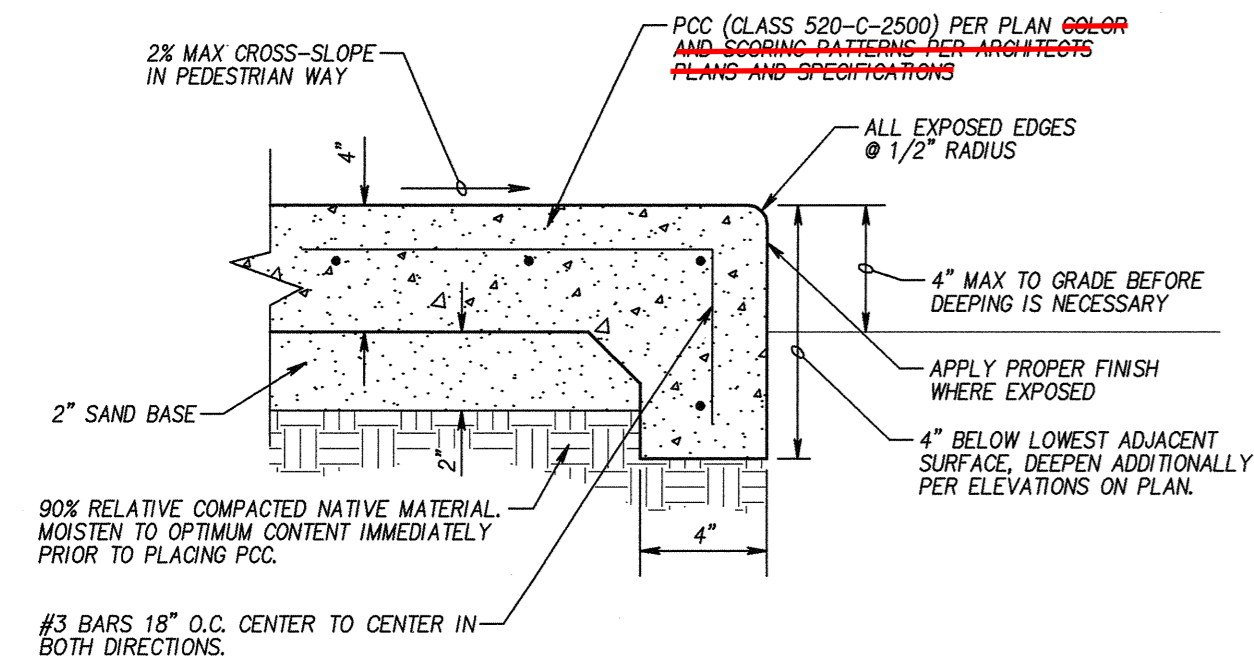
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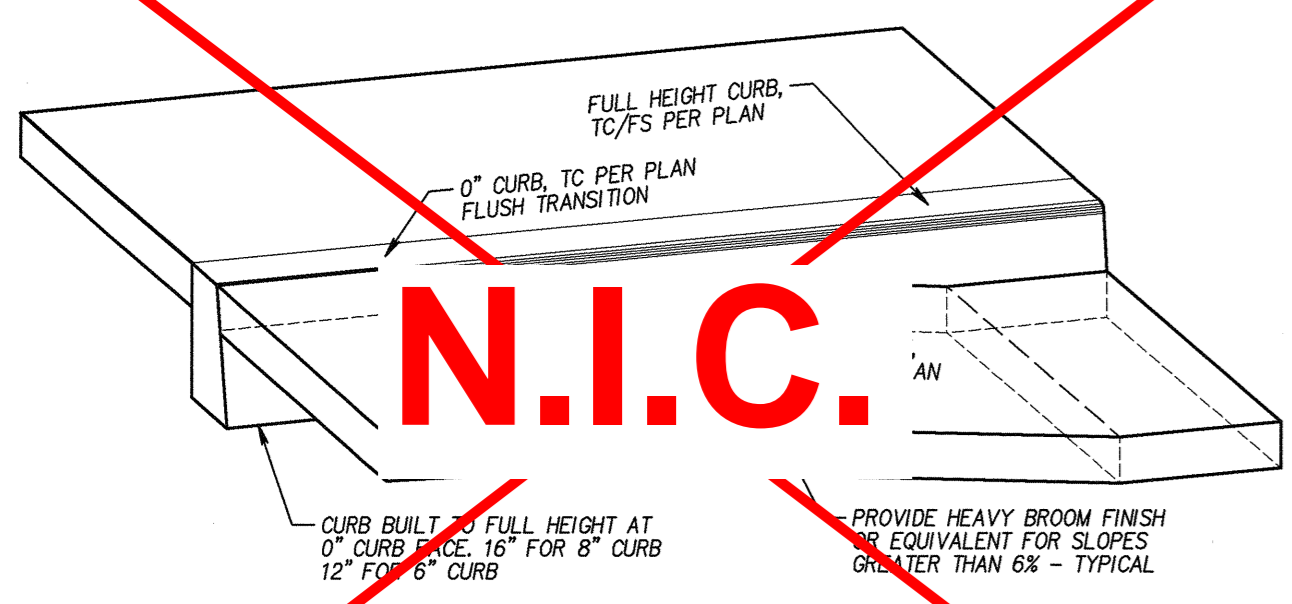
RELOCATION OF PORTABLE @ ICE WEST H.S.
 MORONGO UNIFIED SCHOOL DISTRICT
 YUCCA VALLEY, CA

PRECISE GRADING PLAN
 Sheet Number **C-3.1**
 3 of 4 Sheets

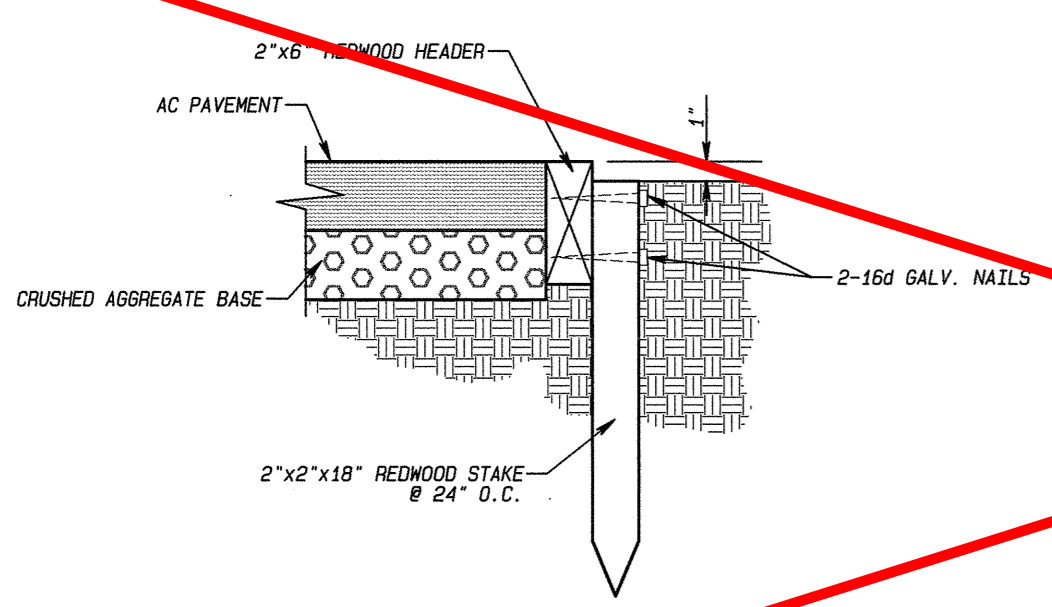
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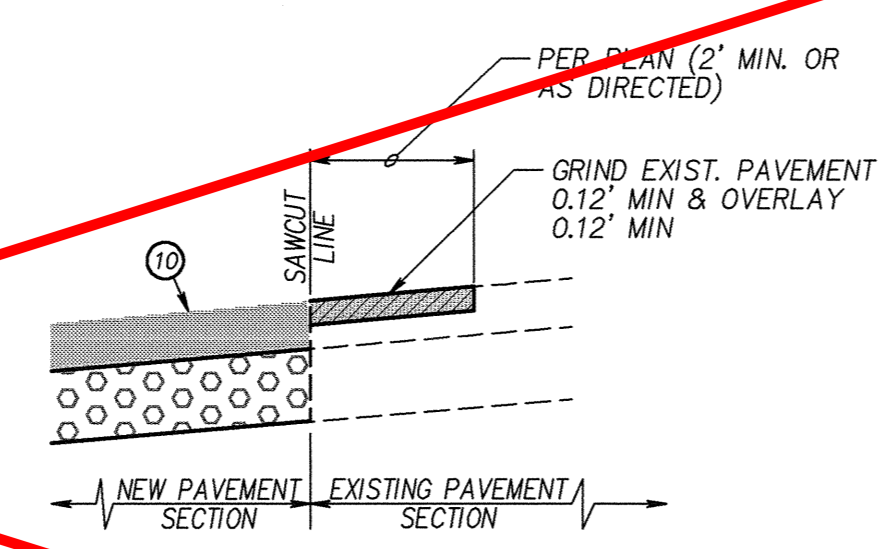
DETAIL "A"
THICKENED PCC EDGE
NOT TO SCALE



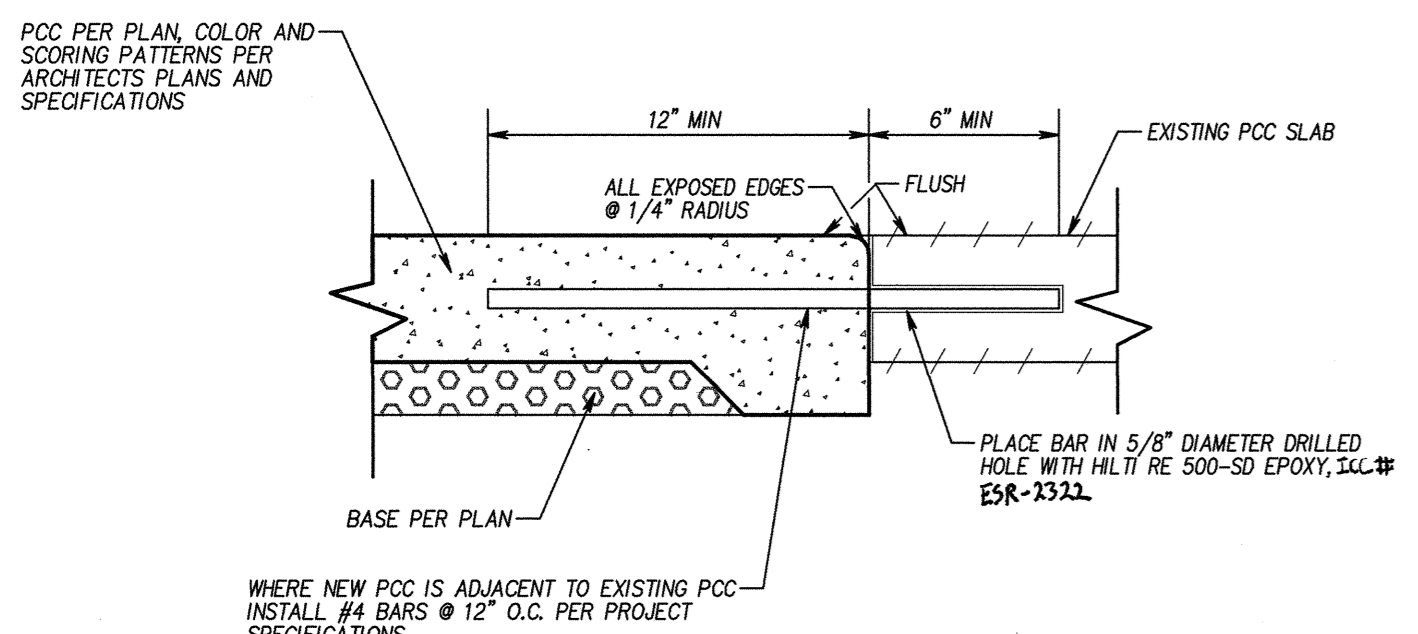
DETAIL "B"
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NOT TO SCALE



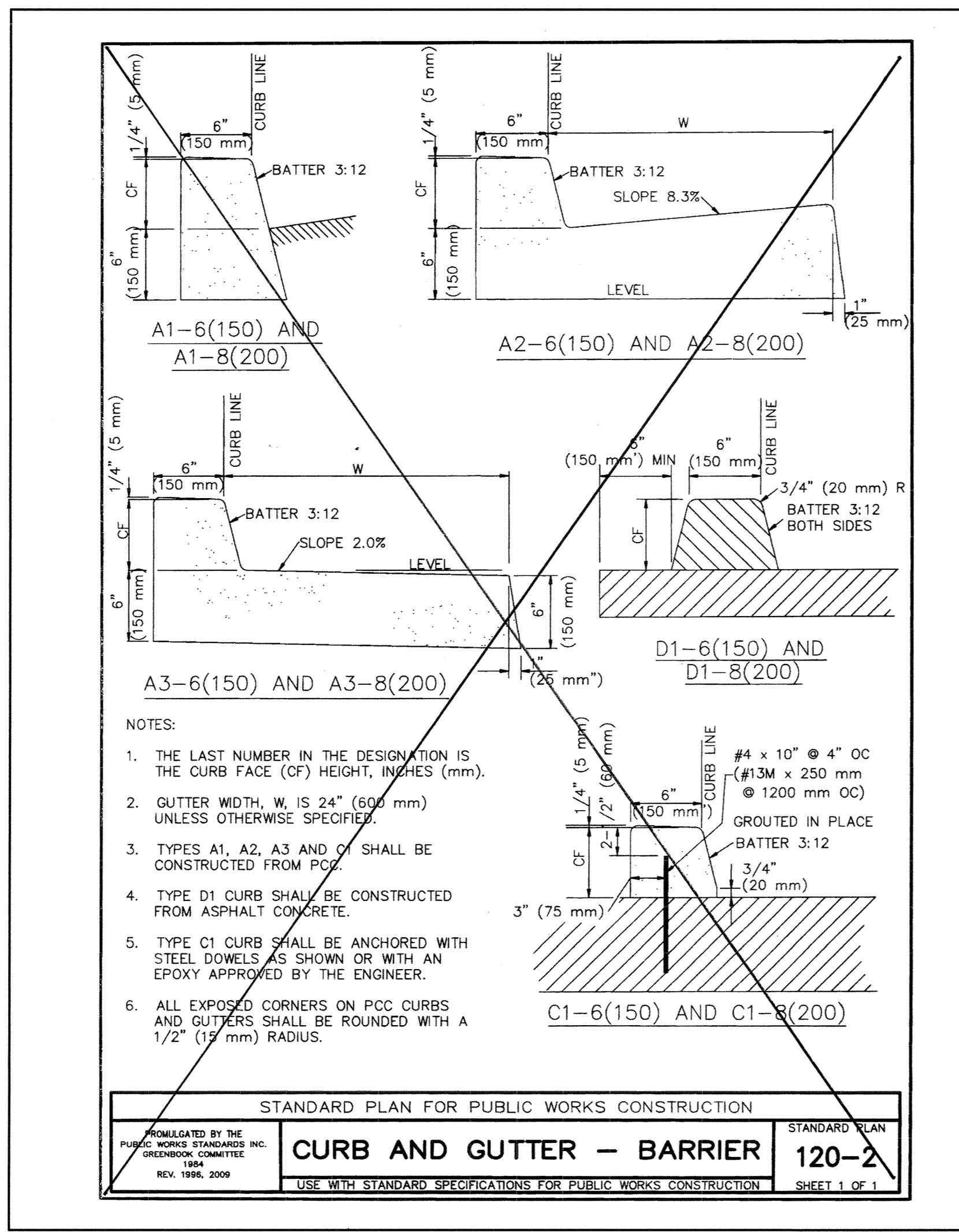
DETAIL "C"
REDWOOD HEADER
NOT TO SCALE



DETAIL "E"
MATCH UP PAVEMENT
NOT TO SCALE



DETAIL "D"
JOIN EXISTING CONCRETE
NOT TO SCALE



STANDARD PLAN FOR PUBLIC WORKS CONSTRUCTION
CURB AND GUTTER - BARRIER 120-2
SHEET 1 OF 1

- GRADING CONSTRUCTION NOTES**
- REMOVE AND DISPOSE OF SPECIFIED ITEM
 - PROTECT IN PLACE SPECIFIED ITEM
 - ADJUST EXISTING ITEM TO PROPOSED FINISHED GRADE
 - REMOVE/RELOCATE SPECIFIED ITEM PER APPROPRIATE CONSULTANTS PLAN
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 - CONSTRUCT 3.0" A.C. PAVING OVER COMPACTED BASE MATERIAL
 - CONSTRUCT 4" PCC (500-C-2500) WITH #3 BARS 18" CENTER TO CENTER IN BOTH DIRECTIONS NATIVE WITH THICKENED EDGE PER DETAIL "A" ON SHEET C-3.2, ~~GRINDING-PATTERNING-COLOR-FINISH-PER-ARCHITECTS-PLANS-AND-SPECIFICATIONS~~
 - CONSTRUCT 6" PCC CURB ONLY PER SPPWC STANDARD PLAN 120-2 TYPE A1-6
 - CONSTRUCT 0" TO 6" PCC (500-C-2500) CURB TRANSITION PER DETAIL "B" ON SHEET C-3.2
 - CONSTRUCT REDWOOD HEADER PER DETAIL "C" ON SHEET C-3.2
 - JOIN EXISTING CONCRETE FLUSH PER DETAIL "D" ON SHEET C-3.2
 - FURNISH AND INSTALL SITE FENCING/RAILING/GATE PER ARCHITECTS PLANS & SPECS.
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 - PAINT/APPLY/INSTALL ACCESS COMPLIANT PARKING LEGENDS, STRIPES AND SIGNS PER ARCHITECTS PLANS & SPECS.

N.I.C.

N.I.C.

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PROFESSIONAL SEAL
ROY D. MOZGAUG
7/15/2015

PROFESSIONAL SEAL
STATE OF CALIFORNIA

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04
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04 114502
AC FLS
DATE 7/16/15

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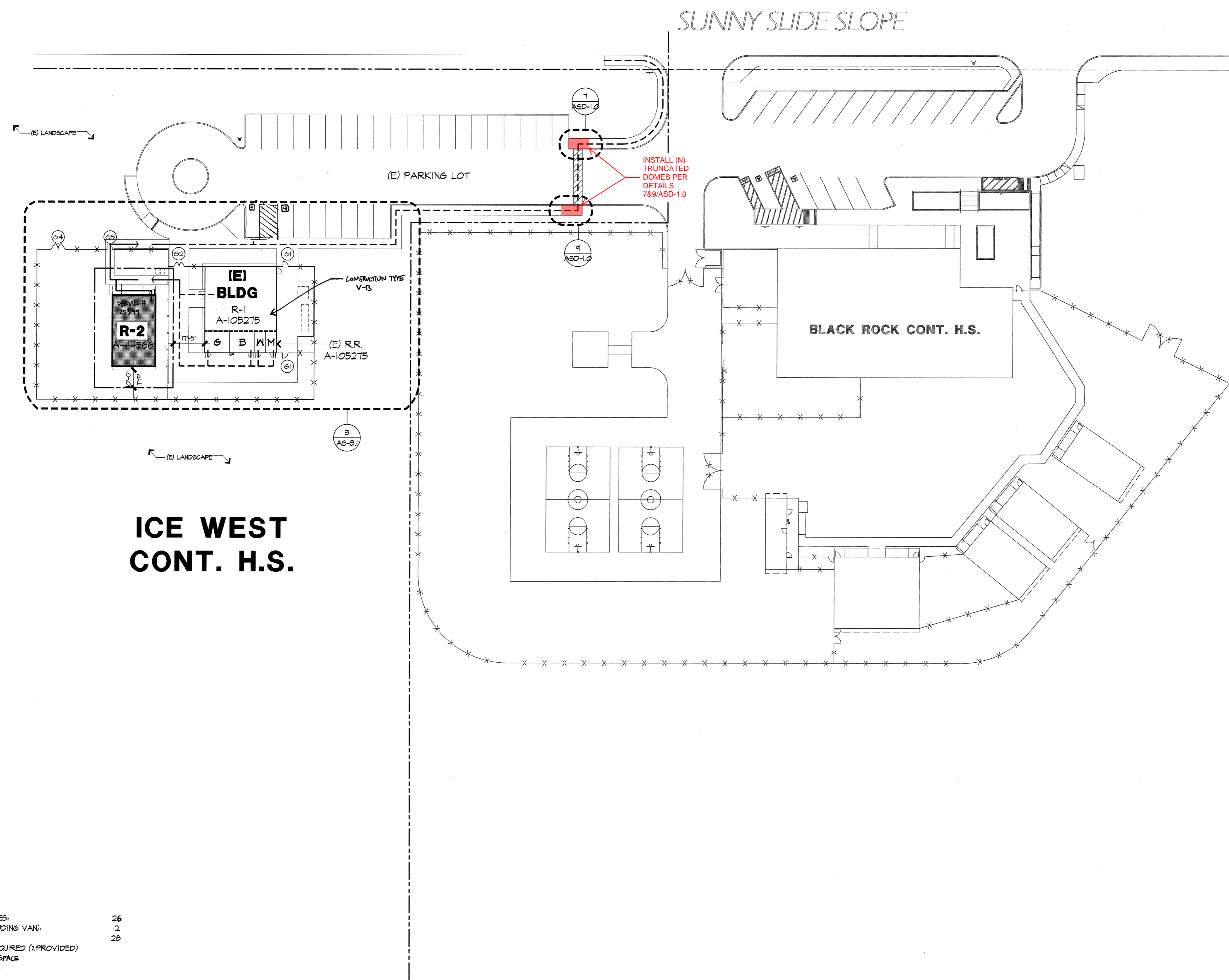
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RELOCATION OF PORTABLE @ ICE WEST H.S.
MORONGO UNIFIED SCHOOL DISTRICT
YUCCA VALLEY, CA

GRADING DETAILS SHEET C-3.2
4 of 4 Sheets

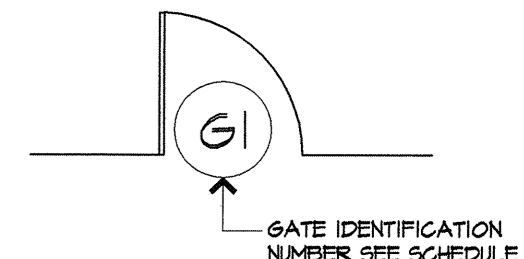


**ICE WEST
CONT. H.S.**

STANDARD PARKING SPACES: 26
 ACCESSIBLE SPACES (INCLUDING VAN): 1
 TOTAL PARKING SPACES: 27
 (2) ACCESSIBLE SPACES REQUIRED (1 PROVIDED)
 1 REGULAR ACCESSIBLE SPACE
 1 VAN ACCESSIBLE SPACE

NO.	SIZE	MATERIAL	FINISH	DETAILS	HW GROUP	SIGNAGE	PANIC	NOTES
G1	(E) 5'-0" X 6'-0"	GL	-	-	1	-	NO	-
G2	(E) 6'-0" X 6'-0"	GL	-	-	1	-	NO	2
G3	(N) 5'-0" X 6'-0"	GL	SALV	-	-	-	YES	-
G4	(E) 6'-0" X 6'-0"	GL	-	-	-	-	NO	-

NOTE:
 1. PROVIDE HARDWARE PER SANITATION DEPARTMENT REQUIREMENTS.
 2. PROVIDE KNOX BOX AND PADLOCK PER FIRE DEPARTMENT REQUIREMENTS.
 3. PROVIDE PADLOCK AS PART OF HARDWARE SET.
 4. NO PADLOCKS ON EXIT GATES IN THE PATH OF EGRESS



GATE HARDWARE:

HWL (chain link gates)
 1 - PADLOCK
 Balance of hardware by Gate Manufacturer

GATE SCHEDULE

SAFE DISPERSAL AREA CALCULATION					
BUILDING	BLDG AREA (SF)	OCC. TYPE	OCCUPANTS PER 100'	AREA REQUIRED	AREA PROVIDED
1 RELOCATABLES	160	E	48		
			OCCUPANTS X 5 SF / OCCUPANT	240 SF	
				TOTAL AREA REQUIRED	240 SF
				TOTAL AREA PROVIDED	

SAFE DISPERSAL AREA CALCULATION

--- ASSUMED IMAGINARY LOT LINE.
 --- PATH OF TRAVEL (P.O.T.)
 --- EXISTING
 --- NEW

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT: THE POT IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE POT HAS BEEN DETERMINED TO BE NON-COMPLIANT WITH THE CURRENT CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS. ANY NON-COMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE POT THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARSHNESS ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS. DURING CONSTRUCTION, IF POT ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NON-COMPLIANT BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

SAFE DISPERSAL AREA
 RELOCATED PORTABLE CLASSROOM FROM JOSHUA TREE E.S.

BOY'S TOILET
 GIRL'S TOILET
 WOMEN'S TOILET
 MENS TOILET
 SINGLE USE TOILET
 DRINKING FOUNTAIN

SITE PLAN 30' 1

SITE LEGEND

BUILDING CODE ANALYSIS

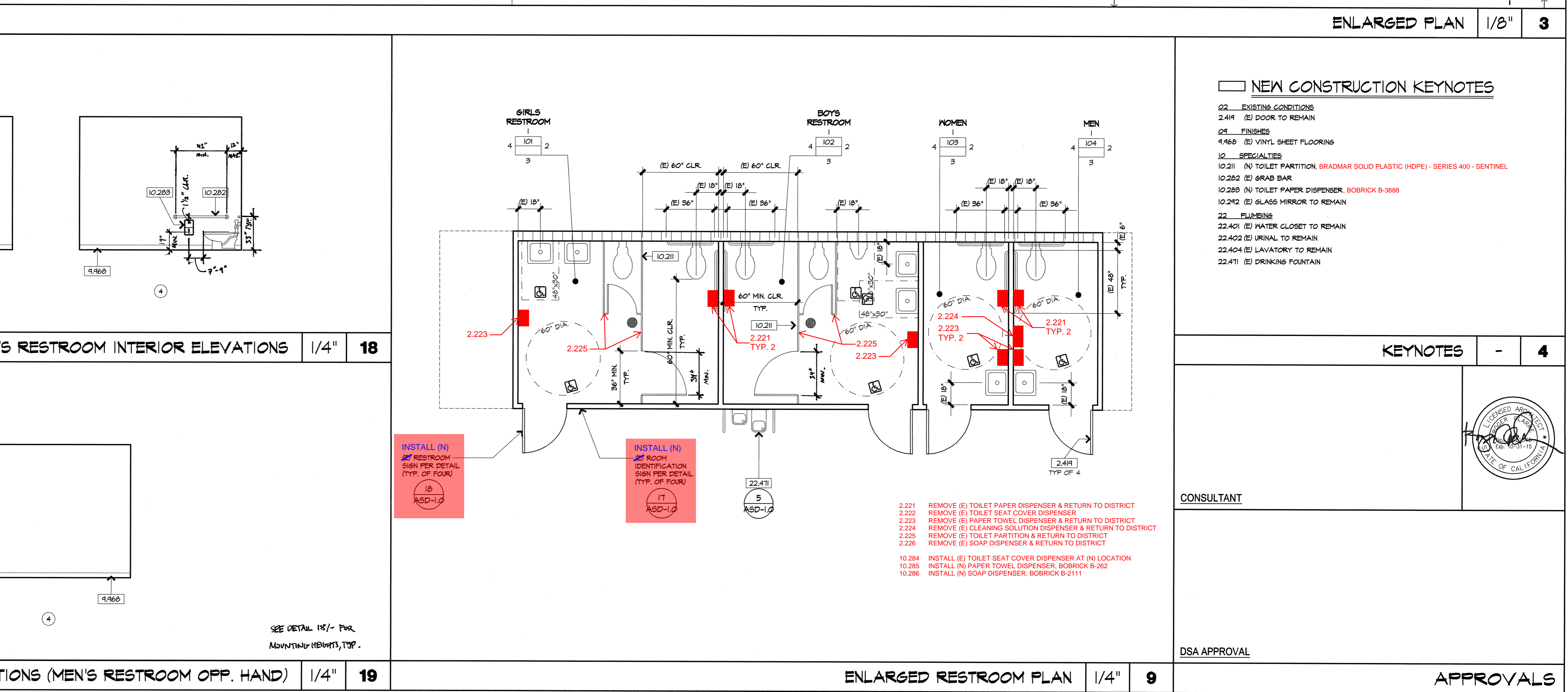
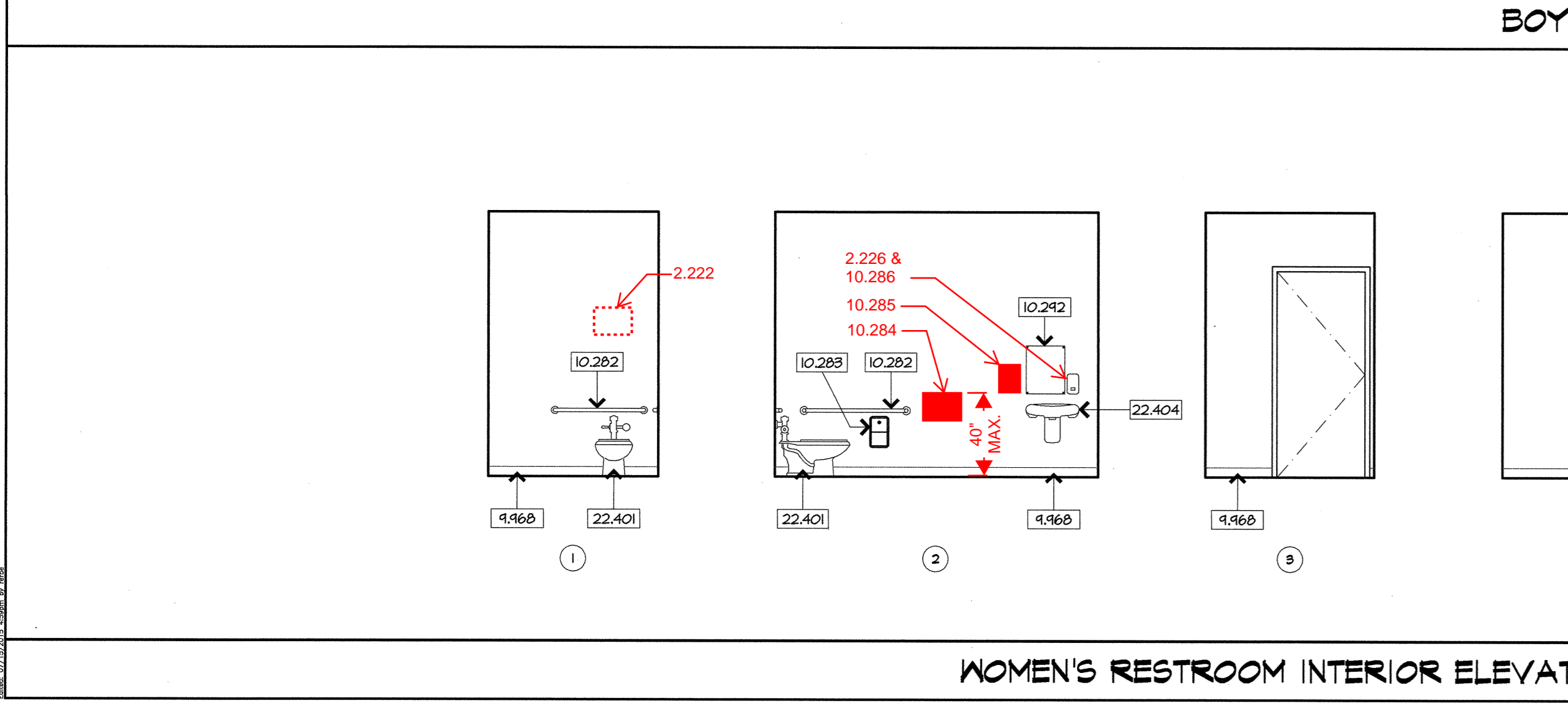
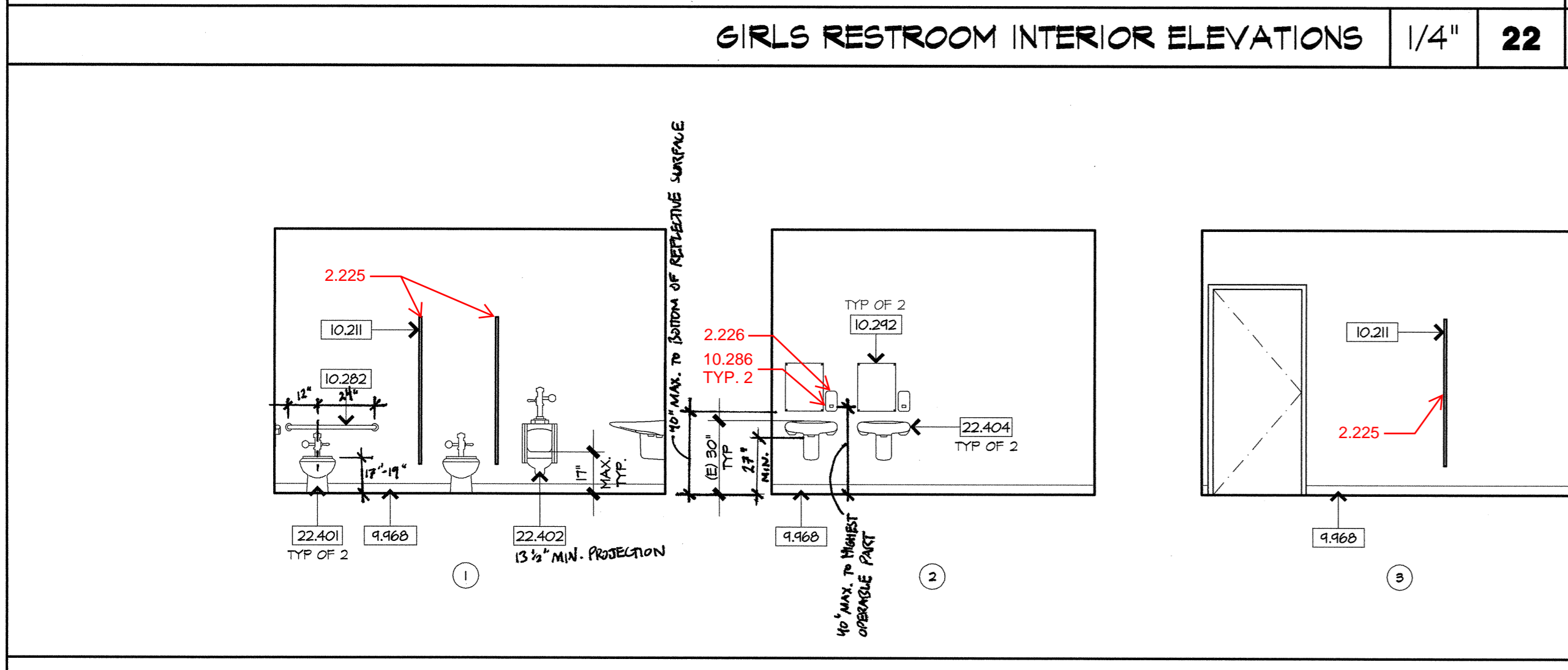
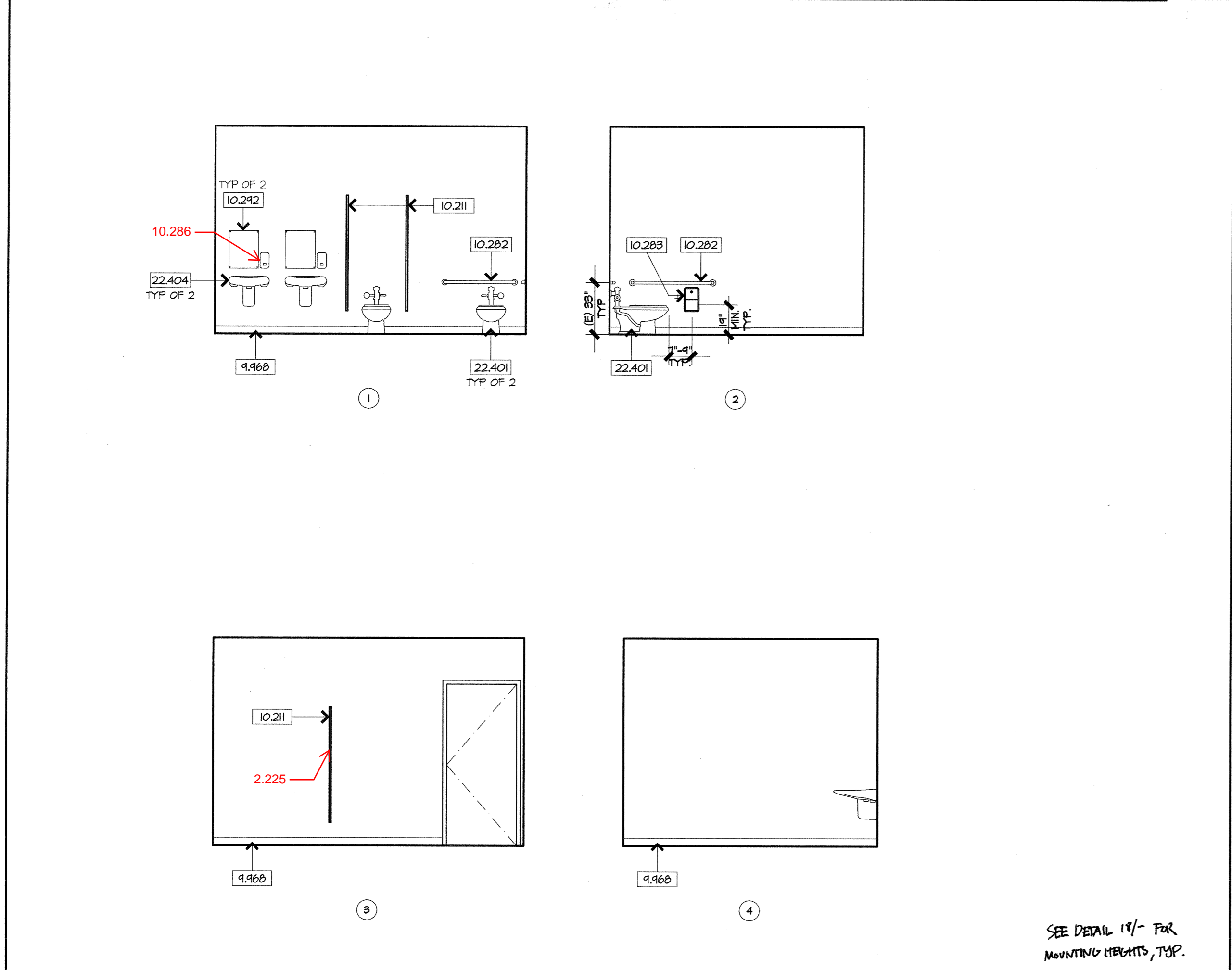
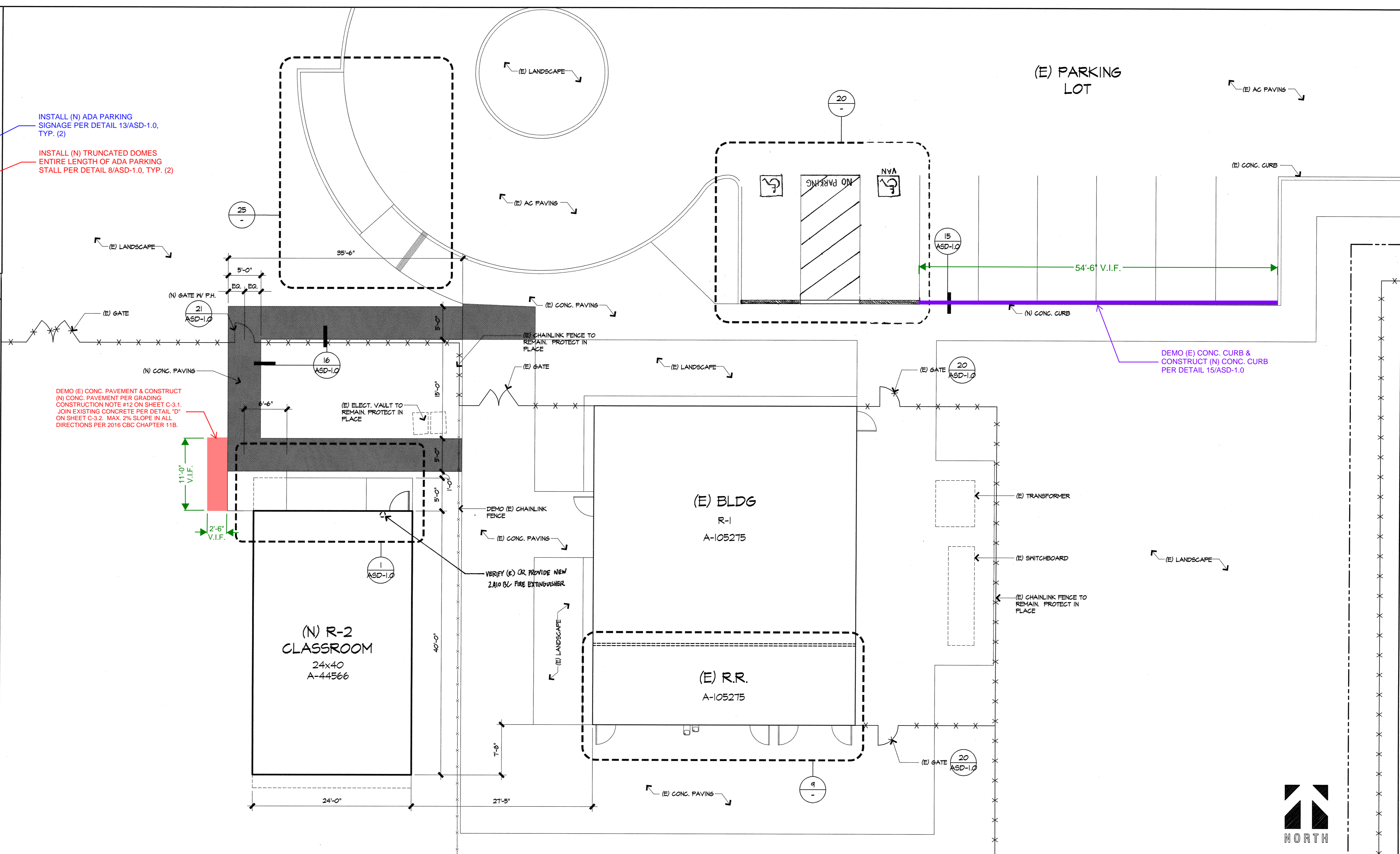
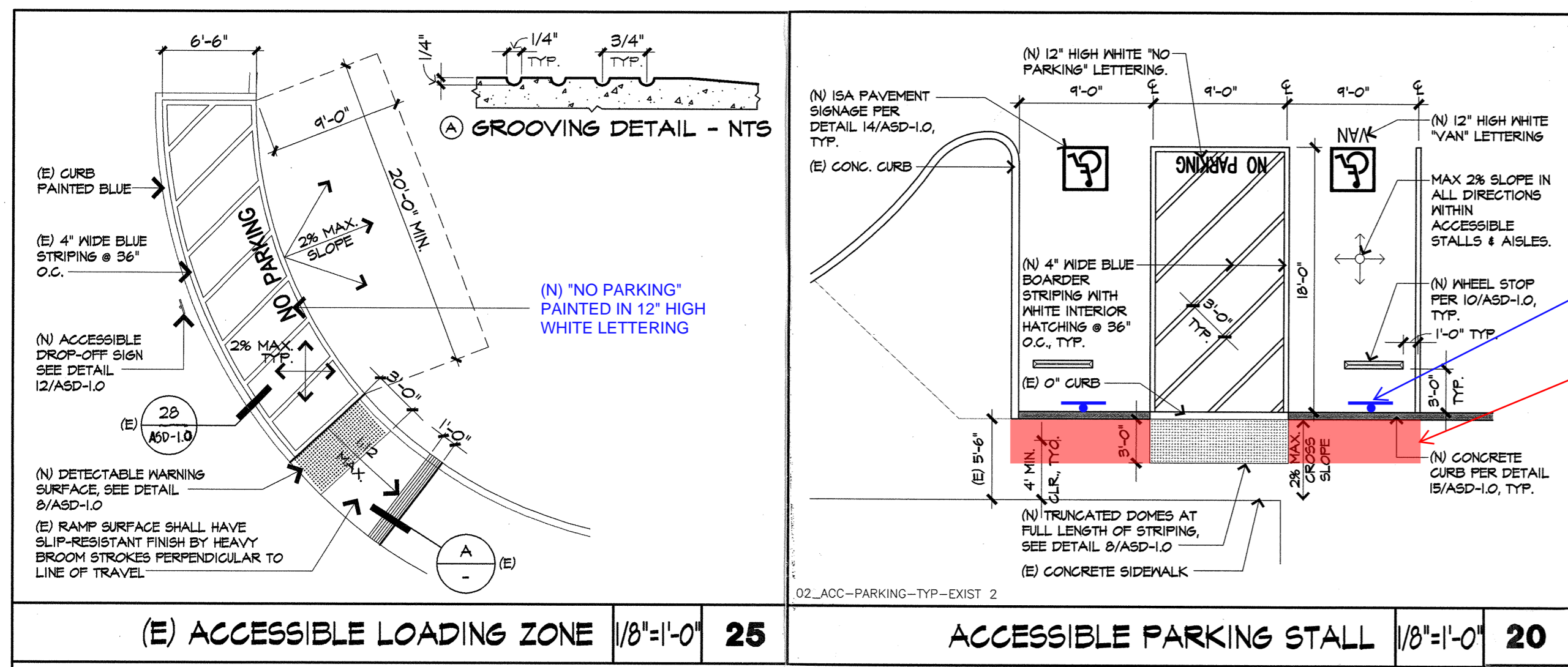
BUILDING NAME	OCCUPANCY SECTION 503	CONST. TYPE SECTION 503	STORIES	ACTUAL HEIGHT	BUILDING AREA (S.F.)		BUILDING AREA MODIFICATION PER SECTION 506	MIXED USE/OCCUPANCY AREA CALCULATION, SECTION 508	EXTERIOR WALL PROTECTION PER TABLE 601		OPENING PROTECTION TABLE 105.2	FIRE SPRINKLER	MISCELLANEOUS INFORMATION	NOTES:
					BASIC ALLOWABLE AREA TABLE 503	ACTUAL AREA (SF)			BEARING	NON-BEARING				
RELOC	E	TYPE - V-B	1	12'-0"	9,500	(N) 160 TOTAL = 960	$A_{M} = \frac{A_{1} + A_{2} + A_{3}}{3}$ $A_{1} = 1600$ $A_{2} = 1500$ $A_{3} = 1500$ $A_{M} = 1500$ $160 / 1500 = .107 < .10$	N/A	0	0	UNLIMITED	NO	-	<ul style="list-style-type: none"> ASSUMED PROPERTY LINE (APL) INDICATED IS FOR CODE COMPLIANCE REFERENCE ONLY. NOT APPROVED FOR SCIENCE, VOCATIONAL OR DAY CARE USE (1) RELOCATED PORTABLE CLASSROOM

CONSULTANT

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 DIV. OF THE STATE ARCHITECT
 OFFICE OF REGULATION SERVICES
 04 114502
 NO. REG. FILE NO. 04
 DATE 7/16/13

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APPROVALS

ALTERNATE NO. 2



No.	DATE	BY	REMARKS

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RELOCATION OF PORTABLE @ ICE WEST H.S.
MORONGO UNIFIED SCHOOL DISTRICT
YUCCA VALLEY, CA

ENLARGED SITE PLAN & ENLARGED RESTROOM PLANS/ELEV.

Sheet Number **AS-3.1**
Of Sheets

ALTERNATE NO. 2

<p>(E) DOOR IDENTIFICATION SIGN 3'-1"-0" 25</p>	<p>(E) CHAIN LINK SERVICE GATE 1/2'-1"-0" 20</p>	<p>CONCRETE CURB DETAIL 1/2'-1"-0" 15</p>	<p>(E) CONCRETE WHEEL STOP 3'-11"-0" 10</p>	<p>(E) ACCESSIBLE D.F. 1/2'-1"-0" 5</p>	<p>RAMP DETAIL 1/4'-1"-0" 1</p>
<p>CHAIN LINK GATE WITH PANIC 3/4'-1"-0" 21</p>	<p>CONCRETE PAVING EDGE 1/2" 16</p>	<p>CONCRETE JOINTS NTS 11</p>	<p>ADA EXIT SIGN 6'-1"-0" 6</p>	<p>RELO RAMP LANDING 1/2'-1"-0" 2</p>	<p>RELO RAMP TRANSITION 1'-1"-0" 3</p>
<p>(E) TOILET SIGNS 6'-1"-0" 27</p>	<p>FENCE POST FOOTING 3/4'-1"-0" 22</p>	<p>(N)(E) TOILET SIGNS 3'-1"-0" 17</p>	<p>PASSENGER DROP OFF SIGN 2'-11"-0" 12</p>	<p>CURB-CUT RAMP 1/4'-1"-0" 7</p>	<p>RAMP SECTION 1'-1"-0" 4</p>
<p>(N)(E) CURB DETAIL 1/2" 28</p>	<p>(N)(E) TOILET SIGNS 2'-1"-0" 23</p>	<p>(N)(E) TOILET SIGNS 1/2'-1"-0" 18</p>	<p>ACCESSIBLE PARKING SIGN 1/2'-1"-0" 13</p>	<p>DETECTABLE WARNING SURFACE 1'-1/2"-1"-0" 8</p>	<p>RAMP SECTION 1'-1"-0" 4</p>
<p>GATE LOCKING FORK AT LEVER 3'-1"-0" 22</p>	<p>DOOR SIGN LOCATIONS 1/2'-1"-0" 24</p>	<p>SIGNAGE REQUIREMENTS FULL 19</p>	<p>ISA PAVEMENT SIGN 3/4'-1"-0" 14</p>	<p>CURB-CUT RAMP 1/4'-1"-0" 9</p>	<p>APPROVALS</p>

ALTERNATE NO. 2

Drawn by	KL
Checked by	KES
Date	
Commission No.	1-49-76

No.	DATE	BY	REMARKS

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RELOCATION OF PORTABLE @ ICE WEST H.S.
MORONGO UNIFIED SCHOOL DISTRICT
YUCCA VALLEY, CA

SITE DETAILS
Sheet Number
ASD-10
Of Sheets

SECTION 03 30 01
CAST IN PLACE CONCRETE SYSTEM

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Cast in place reinforced concrete footings, foundations and foundation walls.
- B. Formwork with shoring, bracing and anchorage as necessary.
- C. Concrete reinforcement.

1.2 RELATED SECTIONS

- A. Section 32 13 13 - Portland Cement Concrete Paving: Concrete for pedestrian traffic, curbs, gutters and other concrete paving work.

1.3 REFERENCES

- A. American Concrete Institute (ACI): As noted throughout this Section.
- B. American Society for Testing and Materials (ASTM): As noted throughout this Section.

1.4 SUBMITTALS

- A. Product Data: Proprietary admixtures, curing compounds, hardeners and sealers, form release agent.
- B. Mix Design: For Project record only, and not for review or approval, submit mix designs sealed and signed by a licensed California Civil or Professional Engineer.
- C. Quality Control Submittals:
 - 1. Field tests: Submit reports of all slump, strength and air content tests as required by authorities having jurisdiction and as indicated on the Drawings and specified herein.
 - 2. Delivery tickets: Have available copies of delivery tickets complying with ASTM C94 for each load of concrete delivered to site. Include on the tickets the additional information specified in the ASTM document.

1.5 QUALITY ASSURANCE

- A. Industry Standards:
 - 1. Perform cast in place concrete Work in accordance with ACI 301, ACI 302.1 and ACI 318.
 - a. When outdoor ambient air temperature is higher than 90 degrees F, comply with ACI 305.
 - b. When air temperature in the shade and away from artificial heat falls below 40 degrees F, or when concrete without special protection is likely to be subject to freezing temperatures before expiration of specified curing period, comply with ACI 306.
 - 2. Formwork design and construction shall be in accordance with ACI 301 and ACI 318.
 - 3. Concrete reinforcement shall be in accordance with ACI 301, ACI 318, CRSI Manual of Standard Practice, CRSI 63 and CRSI 65.

- B. Regulatory Requirements: Conform to 2013 California Building Code (CBC) Chapter 19A requirement, as amended and adopted by authorities having jurisdiction. Chemical products field-applied to concrete shall comply with applicable air quality requirements of authorities having jurisdiction.
- C. Testing Agency Services: District will engage an independent testing and inspection agency to conduct tests and perform other services specified for quality control during construction, as required.

1.6 DELIVERY AND HANDLING

- A. Protection During Concrete Placement: Provide protective coverings and runways, and use appropriate equipment and means of access to Work areas to avoid soiling or damage to existing conditions.
- B. Runoff: Prevent run off of water contaminated by construction agents and chemicals from soiling existing surfaces and from contaminating existing and future landscape areas.
- C. Delivery: Deliver reinforcement bars new and free from rust and mill scale in original marked bundles.
- D. Storage: Store reinforcement to avoid excessive rusting or fouling with grease, oil, dirt or other bond-weakening coatings.

PART 2 - PRODUCTS

2.1 CONCRETE MIX DESIGN

- A. Mix Design: Contractor shall coordinate with the Testing Laboratory of Record, under supervision of California Registered Civil Engineer, to determine mix proportions to fulfill specified requirements for strength, aggregate, size and workability of concrete. Mix design shall bear signature and seal of the Civil or Structural Engineer licensed in the State of California.
- B. Concrete Mix and Delivery: ASTM C94 - Ready-Mixed Concrete, minimum compressive strength indicated below, unless identified otherwise on Drawings.
 - 1. Proportions: For normal weight concrete, in accordance with ACI 301.
 - 2. Concrete Strengths: 3000 psi unless noted otherwise on the Drawings.
 - 3. Water/Cement Ratio: Not to exceed 0.45.
 - 4. Slump: Not to exceed 4 inches.

2.2 CONCRETE MATERIALS

- A. Concrete Materials, General: Acquire cement and aggregates from single source for all cast in place concrete.
- B. Portland Cement: ASTM C150, gray color. Type as indicated on Structural Drawings, or if not indicated, as required by Architect.
- C. Aggregates for Regular Weight Concrete: [Fine and coarse aggregates] [Pea gravel aggregates for pumping], CBC Title 24, Part 2, Sec. 1903A.3, ASTM C33, Class 2M and as follows.
 - 1. Structural and Non-Structural Concrete: Maximum size not larger than 1/4 of narrowest dimension between forms, 1/3 depth of slab nor 3/4 of minimum clear spacing between individual reinforcing bars. Maximum aggregate size shall be 1-1/2 inch.
- D. Water: Clean, fresh and potable, free of amounts of acids, alkalis and organic materials detrimental to concrete production.

2.3 ADMIXTURES

- A. Chemical Admixtures, General: Admixtures which result in more than 0.1 percent of soluble chloride ions by weight of cement are prohibited. Use no admixtures not included in mix design. Products of the following manufacturers are specified and will be acceptable provided they comply with referenced standards all other requirements of the Contract Documents:
1. Anti-Hydro Co., Inc., Newark, NJ (201/242-8000).
 2. Euclid Chemical Co., Cleveland, OH (216/531-9222 or 800/321-7628).
 3. Master Builders Technology, Inc., Cleveland, OH, (216/831-5500; local representative, California 800/228-3318).
 4. W.R. Meadows, Inc., Elgin, IL (700/683-4500; local representative Walnut, CA, 909/469-2606 or 800/342-5976).
 5. Sika Corporation, Lyndhurst, NJ (201/933-8800; local representative, Santa Fe Springs, CA, 310/941-0231).
- B. Air-Entraining Admixture: ASTM C260 and certified by manufacturer for compatibility with other mix components. The following products, providing they comply with the requirements of the Contract Documents, will be acceptable.
1. Air-Mix or Perma-Air by Euclid Chemical Co.
 2. MB-VR or Micro-Air by Master Builders Technology, Inc.
 3. Sika AER by Sika Corporation.
- C. Water-Reducing Admixture: ASTM C494, Type A. The following products, provided they comply with requirements of the Contract Documents, will be acceptable:
1. Eucon WR-75 by Euclid Chemical Co.
 2. Pozzolith Normal or Polyheed by Master Builders Technology, Inc.
 3. Plastocrete 161 by Sika Corporation.
- D. High-Range Water-Reducing Admixture (Superplasticizer): ASTM C494, Type F or G. The following products, provided they comply with requirements of the Contract Documents, will be acceptable:
1. Super P by Anti-Hydro Co., Inc.
 2. Eucon 37 by Euclid Chemical Co.
 3. Rheobuild or Polyheed by Master Builders Technology, Inc.
 4. Sikament 300 by Sika Corporation.
- E. Water-Reducing, Accelerating Admixture: ASTM C494, Type E. The following products, or approved equals, provided they comply with requirements of the Contract Documents, will be acceptable:
1. Accelguard 80 by Euclid Chemical Co.
 2. Pozzutec 20 by Master Builders Technology, Inc.
- F. Water-Reducing, Retarding Admixture: ASTM C494, Type D. The following products, provided they comply with requirements of the Contract Documents, will be acceptable:
1. Eucon Retarder 75 by Euclid Chemical Co.
 2. Pozzolith R by Master Builders Technology, Inc.
 3. Plastiment by Sika Corporation.
- G. Evaporation Reducer: For use where the concrete surface evaporation rate exceeds the concrete bleed rate, such as in direct sunlight, low humidity or during hot and/or windy conditions. The following products, or approved equals will be acceptable:
1. Atlas Finish Film by Atlas Construction Supply, Inc., San Diego, CA.
 2. Confilm by ChemRex, Shakopee, MN.
 3. Evapre by W.R. Meadows, Inc., Pomona, CA.
 4. Profilm 19 by ProMix Technologies, Allen, TX.
 5. Monofilm by Nox-Crete Products Group, Omaha, NB.

2.4 FORMING MATERIAL

- A. Panel type material, largest practical size to minimize joints, to provide continuous, straight, smooth, exposed surfaces.
- B. Formwork materials and installation shall conform to ACI 301 and 347, and shall be sufficient capacity to withstand pressures of concrete placement and to support concrete in place until cured, without distortion.
- C. Form release agent shall be commercial formulation, non-bonding, non-staining, and in compliance with SCAQMD.

2.5 CONCRETE REINFORCEMENT

- A. Reinforcing Bars: ASTM A615, Grade 60, deformed steel, unless indicated otherwise.
- B. Tie Wire: Black annealed type, 16 gage or heavier.
- C. Supports and Spacers: Non-corrosive types as required for spacing and clearance conforming to CRSI Manual of Practice.
- D. Welded Wire Fabric: Welded steel wire fabric, ASTM A185, Plain Type, flat sheets of gage and center-to-center spacing as indicated.

2.6 JOINT DEVICES, FILLER MATERIALS AND OTHER

- A. Control Joints: Sawcut joints after concrete placement and finish. Preformed joint materials are not required.
- B. Joint Filler, Non-Sealed Joints: Premolded bituminous type, ASTM D1751.
- C. Joint Filler, Sealed Joints: Non-bituminous rubber or cork, ASTM D1752.
- D. Expansion Joints: Pre-molded joint filler, 1/2-inch thick by full depth of slab less 3/4" for joint sealer and backer rod.
- E. Moisture-Retaining Cover: One of the following, complying with ASTM C171, for moist curing of concrete.
 - 1. Waterproof paper: ASTM C171, non-staining reinforced type, Sisalkraft Orange Label by Fortifiber Corp., Los Angeles, CA (213/268-6783 or 800/443-4079), or approved equal.
 - 2. Polyethylene film: 6 mil clear polyethylene sheet.
 - 3. White burlap-polyethylene sheeting.

2.7 BONDING COMPOUNDS

- A. Bonding Compounds, General: Products of the following manufacturers are specified and will be acceptable provided they comply with requirements of the Contract Documents:
 - 1. The Burke Group, Converse, TX (800/423-9140; local representative, Martinez, CA, 510/370-7937).
 - 2. Dayton Superior Chemical and Cement Products, Miamisburg, OH (877/823-4860; local office, Fontana, CA 909/829-2765 or 877/531-3344).
 - 3. Euclid Chemical Co., Cleveland, OH (216/531-9222 or 800/321-7628).
 - 4. Tamms Industries Co. (A.C. Horn), Mentor, OH (216/974-2399 or 800/218-2667; local representative, Los Angeles, CA, 213/269-1846).
 - 5. L&M Construction Chemicals, Inc., Omaha, NE (402/453-6600 or 800/362-3331).
 - 6. Larsen Products Corp., Rockville, MD (301/770-5200 or 800/633-6668)

7. Master Builders Technology, Inc., Cleveland, OH, (216/831-5500; local representative, Rancho Cucamonga, CA, 909/987-1758).
 8. W.R. Meadows, Inc., Elgin, IL (700/683-4500; local representative Walnut, CA, 909/469-2606 or 800/342-5976).
 9. Sonneborn Building Products, Division of BASF Building Systems, Shakopee, MN (800/433-9517; local representative 562/799-6325).
 10. Stonhard, Inc., USA, Maple Shade, NJ (800/736-9300).
 11. Thoro System Products, Miami, FL (800/327-1570).
 12. Symons Corporation, Des Plaines, IL (708/298-3200; local representative, Industry, CA, 818/330-6855).
 13. US Mix Products Co., Denver, CO (303/778-7227 or 800/397-9903).
- B. Bonding Compound: Polyvinyl acetate, acrylic or styrene butadiene base. Provide polyvinyl acetate compound at interior locations only.
1. Polyvinyl Acetate (Interior Only):
 - a. Superior Concrete Bonder by Dayton Superior Corp.
 - b. Deck-O-Weld by W.R. Meadows, Inc.
 - c. Euco Weld by Euclid Chemical Co.
 - d. Weld-Crete by Larsen Products Corp.
 - e. Everweld by L&M Construction Chemicals, Inc.
 - f. Ready Bond by Symons Corp.
 - g. US Spec Bondcoat by US Mix Products Co.
 2. Acrylic or Styrene Butadiene:
 - a. Acrylic Bondcrete by The Burke Co.
 - b. Day-Chem Ad Bond by Dayton Superior Corp.
 - c. SBR Latex by Euclid Chemical Co.
 - d. Hornweld by Tamms Industries Co. (A.C. Horn)
 - e. Everbond by L&M Construction Chemicals, Inc.
 - f. Acryl-Set by Master Builders Inc.
 - g. Intralok by W.R. Meadows, Inc.
 - h. Acryl 60 by Thero System Products.
 - i. Stonlock LB2 by Stonhard, Inc.
 - j. Strong Bond by Symons Corp.
 - k. US Spec Acrylcoat by US Mix Products Co.

2.8 CURING, HARDENING AND SEALING MATERIALS

- A. Specified Manufacturer: Sonneborn Building Products, Division of BASF Building Systems, Shakopee, MN (800/433-9517).
- B. Acceptable Manufacturers: Equivalent products of the manufacturers listed below will be acceptable in accordance with the "or equal" provision specified in Section 01600 - Product Requirements. Equivalent products of other manufacturers meeting or exceeding physical and performance characteristics of specified products will be considered in accordance with the substitution provisions specified in Section 01600 - Product Requirements.
 1. Dayton Superior Chemical and Cement Products, Miamisburg, OH (877/823-4860; local office, Fontana, CA 909/829-2765 or 877/531-3344).
 2. Euclid Chemical Co., Cleveland, OH (216/531-9222 or 800/321-7628).
 3. Master Builders Technology, Inc., Cleveland, OH, (216/831-5500; local representative, Rancho Cucamonga, CA, 909/987-1758).
 4. US Mix Products Co., Denver, CO (303/778-7227 or 800/397-9903).
 5. W.R. Meadows, Inc., Pomona, CA (800/342-5976 or 909/469-2606).

- C. Curing, Hardening and Sealing Materials, General: Provide materials suitable for concrete finish and not detrimental to materials to be applied to concrete. Materials shall be compatible with concrete admixtures, shall be recommended by manufacturer for intended use and shall comply with applicable air quality requirements of authorities having jurisdiction.
- D. Curing, Hardening and Dustproofing Compound: Sonneborn Sonosil, water-based inorganic silicate-base compound, to cure, harden and dustproof concrete, VOC-compliant.
- E. Surface Hardening and Dustproofing Compound: Sonneborn Lapidolith concrete hardening compound, chemically-active solution which interacts with free lime in concrete to form dense, impervious wearing surface, VOC-compliant.

2.9 SCREED PINS AND CHAIRS

- A. Manufacturers: Grann Adjustable Quick Screed (800/554-7266), or similar products by Dayton Richmond (800/745-3700), Aztek (877/531-3344), or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that concrete cover requirements are met in formwork construction and reinforcement placement.
- B. Verify that base material (sand, gravel or natural as specified or indicated on Drawings) level, vapor barrier/retarder properly placed and that required clearances to reinforcing steel have been maintained.
- C. Verify that all embedded products and formed openings and recesses are correctly placed.

3.2 PREPARATION

- A. Soil Forms: Hand trim sides and bottom of soil forms. Remove loose soil prior to placing concrete.
- B. Constructed Formwork: Design to support all applied loads until concrete is adequately cured, within allowable tolerances and deflection limits.
 - 1. Minimize form joints of exposed concrete and make leak proof.
- C. Cleaning: Prepare previously placed concrete by cleaning with hydro-blasting or wet sand blasting to provide suitable surface for bonding. Provide minimum aggregate exposure of 1/4-inch.
- D. Bonding: Apply bonding agent in accordance with manufacturer's instructions and recommendations.
- E. Doweling: In locations where new concrete is to be doweled to existing concrete, drill holes and insert dowels, packing solid with non-shrink cement or polymer (epoxy) grout.

3.3 REINFORCEMENT

- A. Placement: Place and secure as specified or noted on Drawings, and in compliance with CRSI - Placing Reinforcing Bars.

- B. Splices: Lap ends and tightly wire tie, complying with ACI 318 for minimum lap. Stagger horizontal bars so that adjacent splices are minimum 48 inches apart.
- C. Minimum Concrete Cover: 3 inches at earth forms, 2 inches below grade, 1-1/2 inches above grade, and center in concrete slab-on-grade.
- D. Wire Fabric Placement: Place sheets as long as possible, lap one full mesh, lace with 16 gage wire. Offset end laps. Extend fabric to within 1-inch of slab edge. Cut mesh at expansion joints or full-depth control joints.

3.4 CONCRETE MIXING

- A. Concrete Mixing, General: Comply with ACI 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete. Introduce and mix admixtures in compliance with manufacturer's instructions and recommendations.
- B. No water shall be added during transit or at the job without specific instructions from engineer responsible for mix design. Concrete shall be placed within 90 minutes after addition of water and admixtures.

3.5 CONCRETE PLACEMENT

- A. Notify District's Inspector and DSA at least 2 working days in advance of placing concrete to allow for inspection of formwork and reinforcing.
- B. Placement and Consolidation, General: Comply with ACI 304 and as follows:
 - 1. Schedule continuous placement of concrete to prevent the formation of cold joints.
 - 2. Provide construction joints if concrete for a particular element or component cannot be placed in a continuous operation.
 - 3. Deposit concrete as close as possible to its final location, to avoid segregation.
- C. Placement in Forms: Limit horizontal layers to depths which can be properly consolidated, but in no event greater than 24 inches.
 - 1. Consolidate concrete by means of mechanical vibrators, inserted vertically in freshly placed concrete in a systematic pattern at close intervals. Penetrate previously placed concrete to ensure that separate concrete layers are knitted together.
 - 2. Vibrate concrete sufficiently to achieve consistent consolidation without segregation of coarse aggregates.
 - 3. Do not use vibrators to move concrete laterally.
- D. Hot Weather Placement: Comply with recommendations of ACI 305 when ambient temperature before, during, or after concrete placement is expected to exceed 90 degrees F (32 deg C) or when combinations of high air temperature, low relative humidity, and wind speed are such that the rate of evaporation from freshly poured concrete would otherwise exceed 0.2 pounds per square foot per hour.
 - 1. Use evaporation reducer.
 - 2. Do not add water to approved concrete mixes under hot weather conditions.
 - 3. Provide mixing water at lowest feasible temperature, and provide adequate protection of poured concrete to reduce rate of evaporation.
 - 4. Use fog nozzle to cool formwork and reinforcing steel immediately prior to placing concrete.
- E. Cold-Weather Placement: Comply with provisions of ACI 306 when air temperature has fallen to or is expected to fall below 40 deg F (4 deg C). Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

1. Uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F (10 deg C) and not more than 80 deg F (27 deg C) at point of placement.
 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise accepted in mix designs.
- F. Protection: Ensure that reinforcement, embedded products, joint fillers and joint devices are not disturbed during concrete placement.

3.6 JOINTS

- A. Construction Joints: Locate and install construction joints so they do not impair strength or appearance of the structure, as acceptable to Architect.
1. Locate construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as indicated otherwise. Do not continue reinforcement through sides of strip placements.
 - a. Dowel Joints: Grease one end of dowel.
 2. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

3.7 FINISHING FORMED SURFACES

- A. Repairs, General: Repair surface defects, including tie holes, immediately after removing formwork.
1. Remove honeycombed areas and other defective concrete down to sound concrete, cutting perpendicular to surface or slightly undercutting. Dampen patch location and area immediately surrounding it prior to applying bonding compound or patching mortar.
 2. Before bonding compound has dried, apply patching mixture matching original concrete in materials and mix except for omission of coarse aggregate, and using a blend of white and normal portland cement as necessary to achieve color match. Consolidate thoroughly and strike off slightly higher than surrounding surface.
- B. Unexposed Form Finish: Repair tie holes and patch defective areas. Rub down or chip off fins or other raised areas exceeding 1/4-inch height.
- C. Exposed Form Finish: Repair and patch defective areas, with fins or other projections completely removed and smoothed.
1. Grout cleaned finish: Apply to surfaces indicated after all contiguous surfaces are accessible; do not clean as work progresses.
 - a. Prepare grout using 1 part portland cement, 1-1/2 parts fine sand, and enough water to produce a mixture with consistency of thick paint. Achieve grout color matching concrete surface color by blending normal and white portland cements.
 - b. Wet areas to be cleaned and apply grout mixture evenly by brush or spray. Scrub surface immediately after grout application to fill minor air bubbles, using cork float or stone, and remove excess grout while it is still plastic. After initial drying, rub surface vigorously with clean burlap, and keep moist for not less than 36 hours.
 2. Contiguous unformed surfaces: Strike smooth and float to a similar texture tops of walls, horizontal offsets, and other unformed surfaces adjacent to or

contiguous with formed surfaces. Continue final finish of formed surfaces across unformed surfaces, unless otherwise specifically indicated.

3.8 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures for passage of Work specified in other Sections, after such Work is in place. Mix, place, and cure concrete as specified to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

3.9 CONCRETE CURING AND SEALING

- A. Curing, General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
 - 1. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations with an evaporation-reducing material.
 - 2. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days, or as recommended by manufacturer.
 - 3. Apply curing compounds after screeding and bull floating, but before power floating and troweling.
 - 4. Moist cure interior concrete floor slabs on grade, prepared to receive finish flooring materials.
- B. Application of Liquid and Dust-On Agents: Apply agents in accordance with manufacturer's instructions and recommendations.

3.10 FIELD QUALITY CONTROL

- A. Inspection and Testing: Field inspection and testing will be performed in accordance with ACI 301 and under provisions of General Conditions, Testing and Inspections.
- B. Field Tests of Concrete: Perform tests in accordance with applicable Building Code requirements, ACI 301 and requirements of authorities having jurisdiction.
- C. Compressive Strength Tests: Take four test cylinders for each 50 cubic yards of structural concrete with a minimum of one test for each day's placement of concrete placed.
 - 1. Test one cylinder at 7 days and two at 28 days after placement.
 - 2. Maintain fourth cylinder to be tested at 56 days only if 28-day test fails to meet strength requirement.
 - 3. Take one additional test cylinder during cold weather concreting and cure it at job site under same conditions as concrete it represents. Test cold weather cylinder at 28 days.
- D. Slump Tests: Make slump test for each 10 cubic yards of concrete placed.
- E. Field Certifications: For all concrete, provide signed copy of batch plant's certificate stating quantity of each material, amount of water, admixtures, departure time and date accompanying each load of materials or concrete.

- F. Special Inspection: Employ a special inspector during taking of test specimens and placing of pneumatically placed concrete and all reinforced foundation concrete which is required to have a compressive strength in excess of 2,500 psi. Additional inspections, if required, indicated on Structural Drawings.

3.11 FORMWORK REMOVAL

- A. Provided that concrete has hardened sufficiently to prevent damage, and has achieved sufficient strength to support its own weight, forms may be removed after 24 hour curing period at not less than 50 degrees F.

3.12 DEFECTIVE CONCRETE

- A. Defective Concrete: The following concrete will be deemed to be defective, and shall be removed promptly from the job site.
 - 1. Concrete which is not formed as indicated, is not true to intended alignment, is not plumb or level where so intended, is not true to intended grades and levels;
 - 2. Has voids or honeycomb that have been cut, resurfaced, or filled, unless with the approval of the Architect;
 - 3. Has sawdust, shavings, wood, or embedded debris;
 - 4. Does not conform fully to provisions of the Contract Documents.
- B. Repairs and Replacements:
 - 1. Where defective concrete is found after removal of the forms, cut out the defective concrete, if necessary, and make the surfaces match adjacent surfaces.

- 2. Work uneven surfaces and angles of concrete to a surface matching adjacent concrete surfaces.

3.13 PROTECTION

- A. Protection: Protect concrete from marring and damage due to weather and construction activities.
 - 1. Protective measures shall include providing temporary coverings and prohibiting all non-essential construction activities, including cleaning and maintenance of construction equipment.

END OF SECTION

SECTION 05 12 00

STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Structural steel framing members, .
- B. Base plates, shear stud connectors and expansion joint plates.
- C. Grouting under base plates.

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Steel fabrications affecting structural steel work.

1.03 REFERENCE STANDARDS

- A. AISC (MAN) - Steel Construction Manual; American Institute of Steel Construction, Inc.; 2005.
- B. AISC S303 - Code of Standard Practice for Steel Buildings and Bridges; American Institute of Steel Construction, Inc.; 2005.
- C. AISC S348 - Specification for Structural Joints Using ASTM A325 or A490 Bolts; 2004.
- D. ASTM A 36/A 36M - Standard Specification for Carbon Structural Steel; 2005.
- E. ASTM A 53/A 53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2007.
- F. ASTM A 108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold Finished; 2007.
- G. ASTM A 123/A 123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2002.
- H. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- I. ASTM A 307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength; 2007b.
- J. ASTM A 325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009.
- K. ASTM A 325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2009.
- L. ASTM A 490 - Standard Specification for Structural Bolts, Alloy Steel, Heat-Treated, 150 ksi Minimum Tensile Strength; 2008b.
- M. ASTM A 490M - Standard Specification for High-Strength Steel Bolts, Classes 10.9 and 10.9.3, for Structural Steel Joints (Metric); 2008.
- N. ASTM A 500/A 500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2007.
- O. ASTM A 501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2007.
- P. ASTM A 529/A 529M - Standard Specification for High-Strength Carbon-Manganese Steel of Structural Quality; 2005.
- Q. ASTM A 563 - Standard Specification for Carbon and Alloy Steel Nuts; 2007a.

- R. ASTM A 563M - Standard Specification for Carbon and Alloy Steel Nuts (Metric); 2007.
- S. ASTM A 572/A 572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel; 2007.
- T. ASTM A 992/A 992M - Standard Specification for Structural Steel Shapes; 2006a.
- U. ASTM A 1008/A 1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength, Low Alloy, and High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable; 2007a.
- V. ASTM A 1011/A 1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability; 2008.
- W. ASTM C 1107/C 1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2008.
- X. ASTM E 94 - Standard Guide for Radiographic Examination; 2004.
- Y. ASTM E 164 - Standard Practice for Ultrasonic Contact Examination of Weldments; 2008.
- Z. ASTM E 165 - Standard Test Method for Liquid Penetrant Examination; 2002.
- AA. ASTM E 709 - Standard Guide for Magnetic Particle Testing; 2008.
- AB. ASTM F 436 - Standard Specification for Hardened Steel Washers; 2009.
- AC. ASTM F 959 - Standard Specification for Compressible-Washer-Type Direct Tension Indicators for Use with Structural Fasteners; 2007a.
- AD. ASTM F 1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength; 2007a.
- AE. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.
- AF. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2008.
- AG. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).
- AH. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).
- AI. UL (FRD) - Fire Resistance Directory; Underwriters Laboratories Inc.; current edition.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings:
 - 1. Include erection drawings, elevations, and details where applicable.
 - a. For structural steel fabrications a two part submittal process is required.
 - 1) Provide a complete Erection Drawing submittal for review without submission of Fabrication Drawings. Include anchor bolt setting plan.
 - 2) After Erection Drawings are approved, incorporate all comments and resubmit with corrections incorporated. Fabrication Drawings of individual components are then submitted as part of this second package.
 - 2. Indicate profiles, sizes, spacing, locations of structural members, openings, attachments, and fasteners.
 - 3. Connections not detailed.
 - 4. Indicate cambers, loads, and tolerances.
 - 5. Indicate welded connections with AWS A2.4 welding symbols. Indicate net weld lengths.
 - 6. Verify measurements, lines, grades, elevations, locations and details of field conditions and be responsible for correctness, conformity, accuracy and execution of structural steel construction.

7. Conform to AISC specifications, except provisions for Architect (Structural Engineer) verification of dimensions shall not apply. Provide setting drawings, templates and directions for installation of anchor bolts and other anchorages to be installed under other sections.
- C. Product Data:
1. Submit to the testing laboratory manufacturer's certification for bolts, nuts, washers, filler material for welding, primer and non-shrink grout.
 2. Manufacturer's Mill Certificate: Certify that products meet or exceed specified requirements.
 3. Mill Test Reports: Indicate structural strength, destructive test analysis and non-destructive test analysis.
 - a. Submit mill test certificates for mill order steel which can be identified readily by means of heat or melt numbers marked at the mill and for which continuity of such identification can be maintained at the place of fabrication to the satisfaction of the testing agency. Such steel need not be tested as specified in Section 01 4000 Quality Requirements and Division 1 Section 01 4533 - Code Required Special Inspections and Procedures.
- D. Welding Procedures Specification Submittal: Welding Procedures Specification (WPS) as defined by AWS D1.1. The WPS shall be prepared by the fabricator for review and approval by the Architect (Structural Engineer) and Testing Laboratory as complying with specified criteria and shall be readily available to the Welding Inspector.
- E. Welders Certificates: Certify welders employed on the Work, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

- A. Fabricate structural steel members in accordance with AISC "Steel Construction Manual."
- B. Comply with Section 10 of AISC "Code of Standard Practice for Steel Buildings and Bridges" for architecturally exposed structural steel.
- C. Maintain one copy of each document on site.
- D. Inspection: The Owner (District) will employ a special inspector during all welding, and high-strength bolt installations and tightening operations, in accordance with California Building Code (CBC) requirements and other requirements of authorities having jurisdiction.
- E. Fabricator: Company specializing in performing the work of this section with minimum 5 years of documented experience.
- F. Erector: Company specializing in performing the work of this section with minimum 5 years of documented experience.
- G. Qualifications for Welding Work: Qualify welding procedures and welding operators in accordance with AWS "Qualification" requirements.
 1. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.
 2. If re-certification of welders is required, re-testing will be Contractor's responsibility.
- H. Coordination: Provide setting drawings, templates, and directions for installation of anchor bolts and other embedded and built-in structural steel products.
- I. Design connections not detailed on the drawings under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in California.

1.06 REGULATORY REQUIREMENTS

- A. Conform to California Building Code (CBC), Title 24, Part 2, Chapter 22A requirements.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver anchor bolts, base plates and other anchorage devices in time to be installed before the start of cast-in-place concrete operations or masonry work in which products will be embedded.

- B. Storage: Store structural steel members at the Project site above ground on platforms, skids or other supports.
 - 1. Protect steel from corrosion. Store other materials in weather-tight and dry manner, under covers which do not entrap condensation, until ready for incorporation in the Work.
 - 2. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Metal Surfaces, General: For fabrication of work that will be exposed to view, use only materials that are smooth and free of surface blemishes including pitting, rust and scale seam marks, roller marks, rolled trade names, and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating, and applying surface finishes.
- B. Steel Angles and Plates: ASTM A 36/A 36M.
 - 1. Unless indicated as Grade 50 on Drawings.
- C. Steel W Shapes and Tees: ASTM A 992/A 992M, unless noted otherwise on Drawings.
- D. Rolled Steel Structural Shapes: ASTM A 992/A 992M.
- E. Steel Shapes, Plates, and Bars: ASTM A 529/A 529M high-strength, carbon-manganese structural steel, Grade 50.
- F. Steel Bars: ASTM A 572/A 572M, Grade 50 (345) high-strength, columbium-vanadium steel.
- G. Cold-Formed Structural Tubing: ASTM A 500, Grade B.
 - 1. Round Hollow Structural Sections (HSS): $F_y = 42$ ksi.
 - 2. Square and Rectangular Hollow Structural Sections (HSS): $F_y = 46$ ksi.
- H. Hot-Formed Structural Tubing: ASTM A 501, seamless or welded.
- I. Steel Sheet: ASTM A 1011/A 1011M, Designation SS, Grade 30 hot-rolled, or ASTM A 1008/A 1008M, Designation SS, Grade 30 cold-rolled.
- J. Pipe: ASTM A 53/A 53M, Grade B, Finish black.
- K. Plain Washers: ANSI B27.2, Type B.
- L. Structural Bolts and Nuts: Carbon steel, ASTM A 307, Grade A galvanized to ASTM A 153/A 153M, Class C.
- M. High-Strength Structural Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, medium carbon, galvanized where indicated.
 - 1. or High-Strength Structural Bolts: ASTM A 490 (ASTM A 490M), Class A or B as indicated, with matching ASTM A 563 (ASTM A 563M) nuts, heavy hex type 3 and ASTM F 436 washers; Type 1 alloy steel.
 - 2. Finish: Plain, uncoated.
 - 3. Finish: Hot-dip zinc-coating, ASTM A153, Class C where required.
- N. Unheaded Anchor Rods: ASTM F 1554, Grade 55, plain, with matching ASTM A 563 or A 563M nuts and ASTM F 436 Type 1 washers.
 - 1. With weldability supplement, where shown on structural drawings.
- O. Headed Anchor Rods: ASTM A 307, Grade C, plain.
 - 1. ASTM A307, Grade A, unless indicated otherwise.
- P. Load Indicator Washers: Provide washers complying with ASTM F 959 at all connections requiring high-strength bolts.
 - 1. Finish: Plain, uncoated.
 - 2. Finish: Mechanically deposited zinc-coating, ASTM B695, Class 50.

- Q. Welding Materials: AWS D1.1; type required for materials being welded.
 - 1. Provide E70XX-low hydrogen electrodes for shielded metal arc welding.
 - 2. Provide E70XX-low hydrogen electrodes for shielded metal arc welding. Provide E71TXX wire type for flux-cored arc welding.
 - 3. The filler metal used for the welding of members of the lateral load resisting system, shall have a notch toughness not less than 20 ft.-lbs. at 20F. as measured by a standard Charpy V-notch test, ASTM E 23, in accordance with the applicable filler metal specification referenced in AWS D1.1.
- R. Grout: Non-shrink, non-metallic aggregate type, complying with ASTM C 1107/C 1107M and capable of developing a minimum compressive strength of 7,000 psi (48 MPa) at 28 days.
- S. Shop and Touch-Up Primer: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.
 - 1. SSPC Paint 13, standard color.
- T. Touch-Up Primer for Galvanized Surfaces: Fabricator's standard, complying with VOC limitations of authorities having jurisdiction.

2.02 FABRICATION

- A. Shop fabricate to greatest extent possible.
 - 1. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on reviewed shop drawings.
 - 2. Provide base plates shop welded to columns.
 - 3. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence that will expedite erection and minimize field handling of materials.
- B. Continuously seal joined members by continuous welds. Grind exposed welds smooth.
- C. Fabricate connections for bolt, nut, and washer connectors.
- D. Shop Connections: as indicated on Structural Drawings, weld or bolt shop connections.
 - 1. Make welded connections in accordance with AWS D1.1.
 - 2. All shop welding shall be continuously inspected by a DSA approved certified welding inspector employed by the District.
- E. Field Connections: Provide bolted connections, except where welded connections are indicated.
 - 1. Provide high strength threaded fasteners for bolted connections, except where unfinished bolts are indicated.
 - 2. Immediately after surface preparation and in compliance with A325-SC, apply one-coat shop paint in accordance with SSPC paint system PS7.01, unless noted otherwise. Use application methods that result in full coverage of joints, corners, edges and exposed surfaces.
- F. High-Strength Bolted Construction: Install high-strength threaded fasteners in accordance with AISC - Specifications for Structural Joints using ASTM A325 or A 490 Bolts.
- G. Develop and provide required camber for structural members where indicated or not.
- H. Welded Construction: Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.
 - 1. Assemble and weld built-up sections by methods that will produce true alignment of axes without warp.
 - 2. Grind and dress smooth all welds exposed in finished Work to preserve shape and profile of welded item.
- I. Templates: Provide steel templates (10 gage minimum) for all bearing or connection plates bearing on or attached to concrete or masonry.
- J. Provisions for Other Work:
 - 1. Provide openings and anchor holes as necessary for securing other Work to structural steel framing and for passage of other Work through steel framing members, as shown on reviewed shop drawings. It shall be solely the Contractor's responsibility to coordinate openings and anchor holes, including sizes and locations.

2. Provide threaded nuts welded to framing and other specialty items as indicated and as necessary to receive other Work.
3. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning. Drill holes in bearing plates.

2.03 FINISH

- A. Prepare structural component surfaces in accordance with SSPC SP 3.
 1. Surface Preparation of Concealed Structural Steel: After inspection and before shipping, clean steelwork to be painted. Remove loose rust, loose mill scale, and spatter, slag, or flux deposits. Clean steel in accordance with Steel Structures Painting Council (SSPC) method as recommended by manufacturer of shop-applied paint.
 2. Painting of Concealed Structural Steel: Immediately after surface preparation, apply one coat of shop paint in accordance with SSPC Paint System PS 7.01. Apply 2 coats of paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first. Use application methods that result in full coverage of joints, corners, edges, and exposed surfaces.
- B. Shop prime structural steel members. Do not prime surfaces that will be fireproofed, field welded, in contact with concrete, or high strength bolted.
 1. Do not paint those members or portions of members to be embedded in concrete or mortar. Paint embedded steel that is partially exposed on exposed portions and initial 2-inches of embedded areas only.
 2. Do not paint those members to receive sprayed-on fireproofing.
 3. Do not paint surfaces to be welded or high-strength bolted with friction-type (SC) connections.
 4. Do not paint surfaces that will be completely concealed by construction.
- C. Galvanize structural steel members to comply with ASTM A 123/A 123M. Provide minimum 1.7 oz/sq ft 530 g/sq m galvanized coating.

2.04 SOURCE QUALITY CONTROL

- A. Source Quality Control, General: Materials and fabrication procedures shall be subject to inspection and tests in mill, shop, and field, conducted by a qualified inspection agency, as specified in Section 01 40 00 - Quality Control.
 1. Such inspections and tests will not relieve Contractor of responsibility for providing materials and fabrication procedures in compliance with specified requirements.
 2. Promptly remove and replace materials or fabricated components that do not comply.
- B. Design of Members and Connections: Details shown on the Drawings are typical. Similar details shall apply to similar conditions, unless otherwise indicated.
 1. Verify dimensions at Project site whenever possible without causing delay in the Work.
 2. Promptly notify Architect (Structural Engineer) whenever design of members and connections for any portion of structure are not clearly indicated.
- C. Provide shop testing and analysis of structural steel.
 1. Shop-Bolted Connections: Inspect or test in accordance with AISC specifications. Verify that gaps of installed Direct Tension Indicators are less than gaps specified in ASTM F959, Table 2.
- D. High-Strength Bolts: Provide testing and verification of shop-bolted connections in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts", testing at least 10 percent of bolts at each connection.
- E. Shop Welding: Inspect and test during fabrication of structural steel assemblies, as follows:
 1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
 2. Perform visual inspection of all welds. Verify that proper WPS is being used.
- F. Test of Welded Connections: Visually inspect all shop-welded connections and test at least 20 percent of welds using the following:
 1. Radiographic testing performed in accordance with ASTM E 94; minimum quality level "2-2T".
 2. Ultrasonic testing performed in accordance with ASTM E 164.

3. Liquid penetrant inspection performed in accordance with ASTM E 165.
 4. Magnetic particle inspection performed in accordance with ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration not acceptable.
- G. Test of Welded Connections: Visually inspect all shop-welded connections and test at least 20 percent of welds using one of the following:
1. Radiographic testing performed in accordance with ASTM E 94; minimum quality level "2-2T".
 2. Ultrasonic testing performed in accordance with ASTM E 164.
 3. Liquid penetrant inspection performed in accordance with ASTM E 165.
 4. Magnetic particle inspection performed in accordance with ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration not acceptable.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that conditions are appropriate for erection of structural steel and that the work may properly proceed.
- B. Bolts and Anchors: Properly place and build bolts and anchor into connecting Work. Bolts and anchors shall be preset by the use of steel templates to locate bolts and anchors accurately.

3.02 ERECTION

- A. Erect structural steel in compliance with AISC "Code of Standard Practice for Steel Buildings and Bridges".
- B. Allow for erection loads, and provide sufficient temporary bracing to maintain structure in safe condition, plumb, and in true alignment until completion of erection and installation of permanent bracing.
 1. Temporary Shoring and Bracing: Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads.
 - a. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.
 - b. Provide temporary planking and working platforms as necessary to effectively complete the Work.
- C. Setting Bases and Bearing Plates: Clean concrete bearing surfaces and roughen by hydro-blasting or wet-process sand blasting. Clean bottom surface of base and bearing plates.
 1. Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.
 2. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
 3. Grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow to cure.
 - a. Plastic Grout: Non-shrink type, pre-mixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing additives, capable of developing a minimum compressive strength of 8000 psi at 28 days.
 4. For proprietary grout materials, comply with manufacturer's instructions.
- D. Field Assembly: Set structural frames accurately to lines and elevations indicated.
 1. Align and adjust various members forming part of complete frame or structure before permanently fastening.
 2. Clean bearing surfaces and other surfaces that will be in permanent contact before assembly.
 3. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
- E. Adjustments: Level and plumb individual members of structure within specified AISC tolerances so that deviations from plumb, level and true alignment shall not exceed 1 in 500.
 1. Establish required leveling and plumbing measurements on mean operating temperature of structure.
 2. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.

- F. Splices and Field Connections: Splice members only where indicated on reviewed shop drawings.
- G. Make splices and connections with bolts except where welding is indicated.
- H. Field weld components and shear studs indicated on shop drawings.
 - 1. Make welds by electric shielded arc process, in compliance with AWS standards. Make butt welds full penetration, unless otherwise indicated.
 - 2. Cleaning: Upon completion, remove slag and clean welds ready for inspection and painting.
 - 3. Minimum Structural Weld Size: 3/16-inch by 1-1/2 inches, or as indicated on the Drawings.
 - 4. Defective Welds: Repair per AWS D1.1.
 - 5. Field or Shop Welding of Galvanized Members: Grind off galvanizing as required by AWS D1.1 prior to welding. Repair with premixed cold galvanizing compound for field touch-up of galvanized coatings by ZRC Worldwide GALVILITE, Marshfield, MA (800/831-3275), or approved equal. Provide silvery-finish galvanic zinc-rich coating containing 95 percent zinc by weight in the dry film and conforming to Federal Specification DOD-P-21035A.
- I. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds, and grind smooth at exposed surfaces.
 - 1. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.
 - 2. Do not enlarge unfair holes in members by burning or by using drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.
- J. Use carbon steel bolts only for temporary bracing during construction, unless otherwise specifically permitted on drawings. Install high-strength bolts in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts".
- K. High Strength Bolting: Where structural joints are made using high strength bolts, hardened washers, and nuts, installation must conform to the Specification for Structural Joints using ASTM A325 or A490 bolts, approved by the Research Council on Structural Connections of the Engineering Foundation, and conforming to Title 24, Part 2, Chapter 22A.
 - 1. Provide high strength bolts with a suitable identifying mark placed on top of the head before leaving the factory.
 - 2. Tighten bolts in non-slip-critical connection to a snug tight condition.
 - 3. Tightening of nuts for slip critical joints shall be done with properly calibrated wrenches, by the turn-of-the-nut method, by installation of alternate design bolts, or by direct tension indicator tightening. Minimum bolt tension for the size of bolt used shall conform to tables listed in reference standards.
- L. Do not field cut or alter structural members without approval of Architect.
 - 1. Field Cutting: Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing. Cutting will be permitted only on secondary members that are not under stress. Finish gas-cut sections equal to a sheared appearance when permitted.
- M. After erection, prime welds, abrasions, and surfaces not shop primed, except surfaces to be in contact with concrete.
- N. Grout solidly between column plates and bearing surfaces, complying with manufacturer's instructions for nonshrink grout. Trowel grouted surfaces smooth, splaying neatly to 45 degrees.

3.03 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch (6 mm) per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch (6 mm).

3.04 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.

- B. High-Strength Bolted Connections: District will engage an independent testing and inspection agency to inspect high-strength bolted connections and to perform tests as described in Division 1 Section, and to prepare test reports.
 - 1. For Direct Tension Indicators, comply with requirements of ASTM F959. Verify that gaps are less than gaps specified in Table 2.
- C. High-Strength Bolts: Provide testing and verification of field-bolted connections in accordance with AISC "Specification for Structural Joints Using ASTM A325 or A490 Bolts", testing at least 10 percent of bolts at each connection.
- D. Welding Inspection: Owner (District) will engage an independent testing and inspection agency to inspect field welding. Unless otherwise specified or indicated on Drawings, all field welding shall be performed under continuous inspection of a certified welding inspector from testing and inspection agency.
 - 1. Scope: Every layer of weld shall be inspected for quality, penetration, and conformance to design requirements.
 - 2. Inspection: Welding inspection shall be by gamma ray, magnaflux, trepanning, or any other aid to visual inspection considered necessary to determine quality of welding.
 - a. When required by authorities having jurisdiction or by requirements noted on Drawings, perform ultrasonic testing.
 - b. All full penetration welds shall be ultrasonic tested with a rate of reduction of tests in compliance with California Building Code (CBC) requirements.
 - 3. Report: Welding inspector will submit a signed report to the Architect (Structural Engineer) verifying that welding was performed in compliance with specified and Code-mandated requirements and that adequate methods were used to determine the quality of the welding.
- E. Welded Connections: Visually inspect all field-welded connections using one of the following:
 - 1. Radiographic testing performed in accordance with ASTM E 94.
 - 2. Ultrasonic testing performed in accordance with ASTM E 164.
 - 3. Liquid penetrant inspection performed in accordance with ASTM E 165.
 - 4. Magnetic particle inspection performed in accordance with ASTM E 709.
- F. Re-Inspection: After correction of deficiencies in structural steel work which inspections and test reports indicate, additional inspections and tests will be performed to confirm that structural steel complies with specified requirements. Costs of re-inspections will be paid in accordance with Conditions of the Contract.

END OF SECTION

SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated steel, aluminum, and miscellaneous items.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 01 - Cast-in-Place Concrete System: Placement of metal fabrications in concrete.
- B. Section 05 51 20 - Structural Steel Framing: Structural steel column anchor bolts.
- C. Section 05 52 13 - Pipe and Tube Railings.
- D. Section 09 91 23 - Exterior Painting: Paint finish.

1.03 REFERENCE STANDARDS

- A. AAMA 611 - Voluntary Specification for Anodized Architectural Aluminum; American Architectural Manufacturers Association; 1998.
- B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2008.
- C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2010.
- D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.
- E. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2009.
- F. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2003 (Reapproved 2007).
- G. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2009a.
- H. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Tensile Strength (Metric); 2009.
- I. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2007.
- J. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2010.
- K. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2010
- L. ASTM B26/B 26M - Standard Specification for Aluminum-Alloy Sand Castings; 2009.
- M. ASTM B85 - Standard Specification for Aluminum-Alloy Die Castings; 2010.
- N. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate; 2007.
- O. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate [Metric]; 2007.
- P. ASTM B210 - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes; 2004.
- Q. ASTM B210M - Standard Specification for Aluminum and Aluminum-Alloy Drawn Seamless Tubes (Metric); 2005.

- R. ASTM B211 - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire; 2003.
- S. ASTM B211M - Standard Specification for Aluminum and Aluminum-Alloy Bar, Rod, and Wire (Metric); 2003.
- T. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes; 2008.
- U. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes [Metric]; 2007.
- V. AWS A2.4 - Standard Symbols for Welding, Brazing, and Nondestructive Examination; American Welding Society; 2007.
- W. AWS D1.1/D1.1M - Structural Welding Code - Steel; American Welding Society; 2010.
- X. AWS D1.2/D1.2M - Structural Welding Code - Aluminum; American Welding Society; 2003, and Errata 2004.
- Y. SSPC-Paint 15 - Steel Joist Shop Primer; Society for Protective Coatings; 1999 (Ed. 2004).
- Z. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); Society for Protective Coatings; 2002 (Ed. 2004).
- AA. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.
 - 1. Include erection drawings, elevations, and details where applicable.
 - a. For complex or larger steel fabrications a two part submittal process is required.
 - 1) Provide a complete Erection Drawing submittal for review without submission of Fabrication Drawings. Include anchor bolt setting plan.
 - 2) After Erection Drawings are approved, incorporate all comments and resubmit with corrections incorporated. Fabrication Drawings of individual components are then submitted as part of this second package.
 - 2. Indicate welded connections using standard AWS A2.4 welding symbols. Indicate net weld lengths.
- C. Welders' Certificates: Submit certification for welders employed on the project, verifying AWS qualification within the previous 12 months.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Conform to applicable requirements of California Building Code (CBC), Title 24, Part 2, as amended and adopted by authorities having jurisdiction and CFC Chapter 35 for welding and other hot works.
- B. Fabricator's Qualifications: Fabricator of light structural steel framing members and other miscellaneous metal fabrications of structural character shall be approved by the authorities having jurisdiction in accordance with applicable Code provisions.
- C. Welder's Qualifications: Welding shall be performed by certified welders qualified in accordance with procedures specified in applicable referenced AWS standard, using materials, procedures and equipment of the type required for the Work. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.
- D. Coordination: Provide templates and sleeves for incorporation of embedded items into the Work specified in other Sections.
- E. Field-Verified Dimensions: Prior to fabrication, field verify dimensions and details of construction. Immediately report variances in writing to Owner and Architect.

- F. Design indicated items under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed in California.

1.06 PACKAGING, DELIVERY, STORAGE AND HANDLING

- A. Storage, General: Store products in enclosed, well-ventilated spaces, not in contact with soil or vegetation and not subject to inclement weather.
- B. Delivery, Storage and Handling, Galvanized Products:
 - 1. Stack and bundle during transport and store to allow air flow between galvanized surfaces.
 - 2. Load for transport to permit continuous drainage should wetting occur.
 - 3. Do not rest galvanized products on cinders or clinkers.

1.07 PROJECT CONDITIONS

- A. Field Inspection of Fabricated Products: Prior to installation, inspect products for damage and verify markings and dimensions against reviewed submittals.
- B. Environmental Conditions: Do not install products intended for interior locations when spaces are uncovered and unprotected from inclement weather.
- C. Coordination: Coordinate metal fabrications Work with Work specified in other Sections so that related Work shall be accurately and properly joined.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: Steel plates, bars, angles, channels, and H-sections; ASTM A 36/A 36M.
 - 1. Galvanized Steel: Structural shapes, plates and bars: From fully killed or semi-killed steel, ASTM A992, except silicon content in the range 0 to 0.4 percent or 0.15 to 0.25 percent, as applicable, only.
- B. Steel Tubing: ASTM A501 Hot-Rolled; ASTM A 500, Grade B cold-formed structural tubing.
- C. Plates: ASTM A 283.
- D. Steel Sheet:
 - 1. For structural uses: Hot-rolled, ASTM A1011; cold-rolled, ASTM A1008.
 - 2. For nonstructural uses: Cold-rolled, ASTM A1008; hot-rolled, ASTM A1011.
 - 3. Galvanized Sheet steel: ASTM A653, with ASTM A924, Coating Designation G90, for precoated sheet; ASTM A1011 for sheet used in fabrications.
- E. Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black and hot-dip galvanized finish, as indicated.
- F. Slotted Channel Framing: ASTM A 653, Grade 33.
- G. Slotted Channel Fittings: ASTM A1011/A1011M.
- H. Fasteners: See Article Anchors, Fasteners and Accessory Materials below.
- I. Bolts, Nuts, and Washers: ASTM A 325 (ASTM A 325M), Type 1, galvanized to ASTM A 153/A 153M where connecting galvanized components.
 - 1. Galvanized Steel fasteners: ASTM 307, Grade A or B for bolts; ASTM A563, Grade A for nuts.
- J. Galvanizing: See requirements specified below.
- K. Welding Materials: AWS D1.1/D1.1M; type required for materials being welded.
- L. Shop and Touch-Up Primer: SSPC-Paint 15, complying with VOC limitations of authorities having jurisdiction.
- M. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic, complying with VOC limitations of authorities having jurisdiction.
 - 1. Galvanizing Repair Compound: Premixed cold galvanizing compound for field touch-up of galvanized coatings by ZRC Worldwide GALVILITE, Marshfield, MA (800) 831-3275, or

approved equal. Provide silvery-finish galvanic zinc-rich coating containing 95 percent zinc by weight in the dry film and conforming to Federal Specification DOD-P-21035A.

2.02 MATERIALS - CORROSION-RESISTANT (STAINLESS) STEEL

- A. Bars, Shapes and Forgings: ASTM A276, Type 302 or 304 as best suited for intended purpose.
- B. Plates, Sheets and Strips: ASTM A167 or ASTM A176, Type 302 or 304 as best suited for intended purpose.
- C. Finish: No. 4, polished, unless otherwise indicated.

2.03 MATERIALS - ALUMINUM

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.
- B. Sheet Aluminum: ASTM B209 (ASTM B209M), 5052 alloy, H32 or H22 temper.
- C. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210 (ASTM B210M), 6063 alloy, T6 temper.
- D. Aluminum-Alloy Bars: ASTM B211 (ASTM B211M), 6061 alloy, T6 temper.
- E. Aluminum-Alloy Sand Castings: ASTM B26.
- F. Aluminum-Alloy Die Castings: ASTM B85.
- G. Bolts, Nuts, and Washers: Stainless steel.
- H. Welding Materials: AWS D1.2/D1.2M; type required for materials being welded.

2.04 ANCHORS, FASTENERS AND ACCESSORY MATERIALS

- A. Anchors and Fasteners, General: Same material, color and finish as the metal to which applied, unless otherwise indicated.
- B. Exterior Exposure: Provide stainless steel.
- C. Type, Size and Spacing: Unless otherwise indicated, provide fasteners of type, grade and class required for intended use and sized and spaced as required for loads and substrate.
- D. Screw Head, Typical: Unless otherwise noted, exposed screws shall be phillips oval or flat head, countersunk.
- E. Standard Bolts and Nuts, Steel: ASTM A307, Grade A, hexagonal head.
- F. Lag Screws and Bolts, Steel: ANSI B18.2.1, type and grade best suited for the purpose, hexagonal or square head.
- G. Plain Steel Screws: FS FF-S-85, FS FF-S-92 and FS FF-S-111; type and grade best suited for the purpose.
- H. Stainless Steel Screws: AISI 300 Series.
- I. Self-Drilling Metal Screw Fasteners: TEKS by Buildex Division, Illinois Tool works, Inc.
- J. Plain Steel Washers: FS FF-W-92, round, carbon steel.
- K. Lock Washers: FS FF-W-84, helical spring, carbon steel.
- L. Toggle Bolts: FS FF-W-588, type, class and style as required for substrate.
- M. Concrete Expansion Anchors, Wedge-Type: Type and size as indicated on the Drawings, as produced by the companies on the following list. If products are not indicated, then provide anchors as directed by the Architect.
 - 1. Simpson Strong Tie Anchor Systems (ICC Report ER-3631);
 - 2. ITW Ramset/Red Head (ICC Report ER-1372), City of Commerce, CA (800) 368-9724;
 - 3. Hilti, Inc. Tulsa, OK (ICC Report ESR-1385);
 - 4. Powers, Inc. (ICC Report ESR-2818, ESR-2502);
 - 5. Substitutions: See Section 01 6000 - Product Requirements.
 - 6. or approved equal.

- N. Cast-In-Place Threaded Rod Insert Hanger for Metal Deck or Concrete: Blue Banger Hanger Simpson Strong Tie Anchor Systems (UL File Ex3605 & Factory Mutual Report 3024378).
- O. Fiber Plugs, Lead Expansion Shields and Screws: Not permitted.
- P. Anchors and/or Dowels Installed with Adhesives: See notes on Structural Drawings.
- Q. Powder-Driven Fasteners: Use only if approved by Architect, generally not permitted where not specifically indicated or in load-bearing installations; Fed Spec FF-P-395 or Fed Spec GGG-D-777;
 - 1. Acceptable Manufacturers:
 - a. Hilti Corporation, Tulsa, OK (918) 627-9711 or (800) 879-8000;
 - b. ITW Ramset/Red Head, City of Commerce, CA, (California) (800) 368-9724;
 - c. Powder Power Tool Corp. "Drive-It"
 - d. Substitutions: See Section 01 6000 - Product Requirements.
- R. Threaded Welded Stud Anchors: Nelson Stud Welding Division, TRW, Inc., Elyria, OH (216) 329-0400 or (800) 321-2005, or approved equal; type and size according to manufacturer's instructions and recommendations, except where otherwise indicated.
- S. Welding Rods and Bare Electrodes: Select according to AWS specifications for the metal alloy to be welded.
- T. Shop Primer Paint:
 - 1. Shop primer, general: Coordinate primer with finish paint and coating, as applicable, to provide sound foundation for field-applied topcoats despite prolonged exposure during construction.
 - 2. Shop primer for ferrous metal at exposed exterior locations: Fabricator's standard zinc-rich two-part catalyzed epoxy coating.
 - 3. Shop primer for ferrous metal at concealed exterior locations and for interior locations: Manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified alkyd primer, complying with performance requirements of FS TT-P-645.
 - 4. Shop primer for galvanized steel, for exposed exterior locations: Fabricator's standard two-part catalyzed epoxy coating, compatible with specified finish paints.
- U. Field Primer and Finish Paints: As specified in Section 09 90 00 - Painting and Coating.
- V. Bituminous Coating: High-build mineral-filled coal tar pitch coating, Tnemec 46-450 Heavy Tnemecol, or approved equal; or a cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers.

2.05 GROUTING COMPOUNDS

- A. Specified Manufacturers: Products of the following manufacturers are specified and will be acceptable provided they comply with referenced standards all other requirements of the Contract Documents:
 - 1. Dayton Superior Corporation, Chemical Operations, Oregon, IL (815) 732-3136 or (800) 745-3707; local office, Santa Fe Springs, CA, (310) 946-5504 or (800) 745-3701.
 - 2. Euclid Chemical Co., Cleveland, OH (216) 531-9222 or (800) 321-7628.
 - 3. L&M Construction Chemicals, Inc., Omaha, NE (402) 453-6600 or (800) 362-3331.
 - 4. Master Builders Technology, Inc., Cleveland, OH, (216) 831-5500; local representative, Rancho Cucamonga, CA, (909) 466-6267.
 - 5. W.R. Meadows, Inc., Elgin, IL (700) 683-4500; local representative Walnut, CA, (909) 469-2606 or (800) 342-5976.
 - 6. The Rawl Plug, Inc., New Rochelle, NY (914) 235-6300.
 - 7. Sika Corporation, Lyndhurst, NJ (201) 933-8800; local representative, Santa Fe Springs, CA, (310) 941-0231.
 - 8. Sonneborn Building Products, Division of ChemRex, Inc., Minneapolis, MN (612) 835-3434 or (800) 433-9517.
 - 9. US Mix Products Co., Denver, CO (303) 778-7227 or (800) 397-9903.
 - 10. Substitutions: See Section 01 6000 - Product Requirements.
- B. Acceptable Manufacturers:
 - 1. The Burke Group, Converse, TX (800) 423-9140; local representative, Martinez, CA (510) 370-7937.

2. Larsen Products Corp., Rockville, MD (301) 770-5200 or (800) 633-6668.
 3. Tamms Industries Co. (A.C. Horn), Mentor, OH (216) 974-2399 or (800) 218-2667; local representative, Los Angeles, CA, (213) 269-1846.
 4. Thoro System Products, Miami, FL (800) 327-1570.
 5. Stonhard, Inc., USA, Maple Shade, NJ (800) 736-9300.
 6. Symons Corporation, Des Plaines, IL (708) 298-3200; local representative, Industry, CA, (818) 330-6855.
 7. Substitutions: See Section 01 6000 - Product Requirements.
- C. Metallic Shrinkage-Resistant Grout: For filling under equipment and interior miscellaneous metal fabrications; pre-mixed factory-packaged compound, metallic aggregate, minimum 8,000 psi 28-day compressive strength. Confirm product selection with manufacturer's recommendations for intended use.
1. Firmix by Euclid Chemical Co.
 2. Ferrogrout by L&M Construction Chemicals, Inc.
 3. Embeco 636 or Embeco 885 by Master Builders Technology, Inc.
 4. Kemox G by Sika Corporation.
 5. Ferrolith H by Sonneborn.
 6. Substitutions: See Section 01 6000 - Product Requirements.
- D. Non-Metallic Shrinkage-Resistant Grout: For filling around anchors for exterior miscellaneous metal fabrications; pre-mixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, plasticizing and water-reducing agents, complying with ASTM C1107 Grade B and CE-CRD-C621, minimum 8,000 psi 28-day compressive strength.
1. Sure Grip Grout by Dayton Superior.
 2. Euco N.S. by Euclid Chemical Co.
 3. Crystex by L&M Construction Chemicals, Inc.
 4. Masterflow 713 or Masterflow 928 by Master Builders Technology, Inc.
 5. Sealtight 588 Grout by W.R. Meadows.
 6. US Spec GP or US Spec MP Grout by US Mix Products Co.
 7. Substitutions: See Section 01 6000 - Product Requirements.
- E. Shrinkage-Resistant Setting Grout: For setting railing posts and similar components in sleeves or blockouts in concrete; pre-mixed, natural aggregate, minimum 8,000 psi 28-day compressive strength.
1. Sonneborn Sonopost.
 2. Thoroc AnchorRoc.
 3. US Spec GP.
 4. Substitutions: See Section 01 60 00 - Product Requirements.
- F. Non-Shrink Polymer (Epoxy) Grout: For setting anchor bolts in concrete.
1. For anchor bolts for structural members: US Spec Gelbond NS by US Mix Products Co., Denver, CO (800) 397-9903, see notes on Structural Drawings, or approved equal.
 2. For anchor bolts for non-structural components: Polymer (epoxy) grout, Brutem MP or AB by Master Builders Technology, Inc., US Spec Gelbond NS by US Mix Products Co., Denver, CO (800) 397-9903, or approved equal, as recommended by manufacturer for intended use.
 3. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 FABRICATION

- A. Ferrous Metal Surfaces, General: For metal fabrications exposed to view upon completion of the Work, provide ferrous metals materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials whose exposed surfaces exhibit pitting, seam marks, roller marks, rolled trade names, roughness, and, for steel sheet, variations in flatness exceeding those permitted by reference standards for stretcher-leveled sheet.
- B. Preparation Before Fabrication: Remove loose mill scale and rust and remove twists and bends in manners not injurious to materials and finishes.

- C. Fabrication: Fabricate and finish metal items in accordance with the Drawings and reviewed shop drawings.
 - 1. Contractor shall verify measurements before fabrication.
 - 2. Hot-dip galvanize fabricated ferrous items, indicated as remaining unpainted, after fabrication. Field connections shall be bolted or screwed where possible. Avoid field cutting and welding which damage galvanized coating.
 - 3. Fit and shop assemble items in largest practical sections, for delivery to site.
 - 4. Prepare and reinforce fabrications as required to receive applied items and transport to site.
- D. Cutting and Fitting: Fabricate with accurate angles and surfaces, true to the required lines and levels and as required to suit installation conditions.
 - 1. Fabricate items with joints tightly fitted and secured.
 - 2. Continuously seal joined members by intermittent welds and plastic filler.
 - 3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.
 - 4. Punch, drill and reaming in manner to leave clean, true lines and surfaces.
 - a. Oversize hole 1/16-inch by punching, when material thickness is equal to or less than bolt diameter plus 1/8-inch.
 - b. Sub-punch 1/16-inch smaller than bolt and drill or ream to oversize by 1/16-inch, when material thickness is thicker than bolt diameter plus 1/8-inch.
 - 5. Gas cutting of steel will be acceptable where stress will not be transmitted through flame-cut surfaces.
 - a. Make cuts clean and to contour.
 - b. Deduct 1/8-inch from effective width of members cut by torch.
- E. Connections, General: Component parts of built-up members shall be well-pinned with closely-fitted contact. Conceal connections where possible. Otherwise, make countersinks for concealment after fabrication, except where noted.
- F. Bolted and Screwed Connections: Provide holes and connections for work specified in other Sections. Use bolts for field connections only. Provide washers under heads and nuts bearing on wood. Draw all nuts tight and nick threads of permanent connections. Use beveled washers where bearing is on sloped surfaces. Where screws must be used for permanent connections in ferrous metal, use flat head type, countersunk, with screw slots filled and finished smooth and flush.
- G. Exposed Mechanical Fastenings: Flush countersunk screws or bolts; unobtrusively located; consistent with design of component, except where specifically noted otherwise.
- H. Supply components required for anchorage of fabrications. Fabricate anchors and related components of same material and finish as fabrication, except where specifically noted otherwise.
- I. Brazing: Brazing shall be of adequate strength and durability with joints tight and flush, smooth and clean. All exposed surfaces shall be ground and finished flush, free of brazing discoloration and other marks. Brazing on finished surfaces shall be indistinguishable from parent metal.
- J. Welding: Conform to AWS D1.1 recommendations.
 - 1. Do not field weld galvanized components to remain unfinished.
 - 2. Provide continuous welds at welded corners and seams.
 - 3. Grind exposed welds smooth and flush with base material.
 - 4. Re-weld to fill holes. Putties and fillers will not be accepted.
- K. Joints on Finished Surfaces: Provide welds ground smooth and filled.
- L. Joints Exposed to Weather or Water: Fabricate to keep water out, or provide adequate drainage of water that penetrates.
- M. Steel Tubing and Piping Fabrication: Unless otherwise indicated, close ends with plate stock so no exposed ends of tubing and piping. Grind all edges.
- N. Mechanical Finishes: Complete finishing prior to fabrication wherever possible.
 - 1. After fabrication, finish all joints, bends, abrasions, and other surface blemishes to match finish.
 - 2. Protect finish on exposed surfaces by using temporary protective covering.

- O. Sheet Metal Joints: Hem exposed edges.
- P. Coordination: Make provisions to connect metal fabrications with or to receive work specified in other Sections.

2.07 FABRICATED ITEMS

- A. Rough Hardware
 - 1. Provide bent or otherwise custom fabricated bolts, plates, anchors, hangers, dowels, and other miscellaneous steel and iron shapes as indicated on Drawings.
 - 2. Fabricate items to sizes, shapes, and dimensions required. Provide malleable-iron washers for heads and nuts which bear on wood structural connections; elsewhere, furnish steel washers.
- B. Sleeves and Post Holes
 - 1. Fabricate from steel pipe as indicated on Drawings and specified for plumbing, mechanical and electrical Work.
 - 2. Diameter: See Structural Drawings for additional requirements. Diameter shall be such that sleeve provides required clearance for components passing through it, including thermal insulation and firestopping materials.
 - 3. Sleeves Through Concrete: Fabricate sleeve from standard weight steel pipe, galvanized after fabrication where below grade or exposed to weather or wet or damp conditions.
- C. Bollards: Steel pipe, concrete filled, crowned cap, as detailed; galvanized finish.
 - 1. Provide for padlock at removable bollard, as detailed on Drawings.
 - 2. Material: Standard weight, galvanized steel pipe, size as indicated on Drawings.
 - 3. Cap: Formed steel, where indicated on Drawings.
 - 4. Grout: Where indicated, portland cement and sand mixture, dome shaped at top as indicated on Drawings.
 - 5. Removable Guard Posts: Set in galvanized pipe sleeve with welded plate, set in concrete footings. Weld eye bolts to plate and to guard post. Eye bolts shall be 3/8" by 1-inch diameter, galvanized. Provide guard posts with galvanized steel top cap.
- D. Ledge Angles, Shelf Angles, Channels, and Plates Not Attached to Structural Framing: For support of metal decking; prime paint finish.
- E. Loose Bearing and Leveling Plates: Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction, made flat, free from warps or twists, and of required thickness and bearing area. Drill plates to receive anchor bolts and for grouting as required. Hot-dip galvanize after fabrication.
- F. Lintels: As detailed; prime paint finish.
- G. Steel Angle Nosings and Thresholds: Steel angle shapes, size and weight as indicated on Drawings, hot-dip galvanized after fabrication, with steel bolts or bent steel strip welded to underside to anchor in place.
- H. Sill Angles for Tempered Glass Railing Assemblies: ASTM A36/A36M steel angles with anchoring devices and sizes as indicated in shop drawings for railing assembly, drilled and tapped for fastener types, sizes, and spacing indicated, prime paint finish.
- I. Toilet Partition Suspension Members: Steel channel sections; prime paint finish.
- J. Slotted Channel Framing: Fabricate channels and fittings from structural steel complying with the referenced standards; electro-galvanized per ASTM B 633, Type III, SC 1 finish.
- K. Other Products and Fabrications
 - 1. Other Products and Fabrications: Provide all materials not specifically described but required for a complete and proper installation, as selected by the Contractor, subject to review and acceptance by Construction Manager and Architect.

2.08 FINISHES - STEEL

- A. Prime paint all steel items. Conform to SSPC Painting Manual. Shop primer paint after fabrication all metal fabrications.
 - 1. Exceptions: Galvanize items to be embedded in concrete or masonry and items specified for intumescent finish.
 - 2. Exceptions: Do not prime surfaces in direct contact with concrete, where field welding is required, and items to be covered with sprayed fireproofing.
 - 3. Exceptions:
 - a. Do not prime stainless steel, plated steel, and anodized aluminum fabrications, unless specifically noted.
 - b. Do not shop prime galvanized fabrications, unless specifically noted.
 - c. Do not shop prime fabrications for which an entirely field-applied coating system is indicated.
- B. Prepare surfaces to be primed in accordance with minimum SSPC-SP2.
 - 1. Solvent-clean in accordance with SSPC-SP 1.
 - 2. Exterior fabrications: Clean in accordance with SSPC-SP 5, 6, 8, or 10.
 - 3. Interior fabrications: Clean in accordance with SSPC-SP 2, 3, 5, 6, 8, or 10.
- C. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- D. Prime Painting: Two coats where finish painting is to be applied.
 - 1. Shop Priming: Comply with SSPC-PA 1. Coordinate with requirements specified in Section - 09 9000 Painting.
 - a. Shop primer, general: Coordinate primer with finish paint and coating, as applicable, to provide sound foundation for field-applied topcoats despite prolonged exposure during construction.
 - 1) Shop primer for ferrous metal at exposed exterior locations: Tnemec 90E-92, ethyl silicate zinc primer, or equal.
 - 2) Tnemec Series 10, or approved equal, modified alkyd rust-inhibitive primer, or manufacturer's or fabricator's standard, fast-curing, lead-free, universal modified alkyd primer, complying with performance requirements of FS TT-P-645.
 - b. Apply primer immediately following surface preparation.
 - c. Do not prime surfaces to be welded.
 - d. Do not prime surfaces in direct contact bond with concrete or mortar.
 - e. Spray apply shop prime without holidays, drips, runs.
 - f. Provide two coats where product will not be finish painted or will be concealed in completed work.
 - g. Apply an additional coat to corners, welds, edges, and fasteners.
 - h. Allow primer to dry and cure before handling.
- E. Shop Painting
 - 1. Shop Painting: Comply with SSPC-PA 1. Shop paint fabrications where feasible.
 - a. Apply thermosetting enamel paint, gloss or semi-gloss, of a type and color as selected and approved by Architect, if not otherwise specified.
 - b. Shop applied finish paint shall be baked to set and cure.
 - c. Allow finish paint to thoroughly dry and cure before handling.
 - 2. Steel Embedded in Concrete: Coat concealed faces with bituminous coating.
 - 3. Galvanized Pre-Treatment: Where zinc-coated surfaces are specified to be shop primed, chemically treat surfaces to provide bond for paint before applying primer.
- F. Galvanizing of Structural Steel Members: Galvanize after fabrication to ASTM A123/A123M requirements.
- G. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.
- H. Galvanizing
 - 1. General: All exposed to the weather ferrous metal fabrications, unless otherwise specified or indicated on the Drawings, shall be galvanized in accordance with applicable referenced ASTM standards. Galvanize products after fabrication. Hot dip galvanize only, unless otherwise specified.

2. Product Fabrication, General: Fabricate products to be galvanized in accordance with Recommended Details for Galvanized Structures by American Hot Dip Galvanizers Association, Inc.
 - a. Comply with applicable portions of ASTM A392 and A491, except as otherwise specified herein. Avoid techniques which could cause distortion or embrittlement of steel.
 - b. Notify Architect before and during submittals review and before fabrication proceeds, of potential warpage problems which may require design modification.
3. Product Preparation for Galvanizing:
 - a. Remove welding slag and burrs.
 - b. Provide holes and lifting lugs as necessary for handling during galvanizing process and only at positions approved by Architect.
 - c. Remove grease, oil, paint and other deleterious materials.
 - d. Do not use unsuitable marking paints on steel prior to galvanizing.
 - e. Use blast cleaning or other method as necessary if surface contaminants and coatings cannot be removed by normal chemical cleaning process.
4. Surface preparation:
 - a. Pre-clean using caustic bath, acid pickle and flux.
 - b. Alternatively, pre-clean by blast cleaning and fluxing.
 - c. Conform to ASTM A123, as applicable, for steel members, fabrications and assemblies.
 - d. Conform to ASTM A153 for bolts, nuts and washers, and steel hardware components.
 - e. Conform to ASTM A392 for protection against embrittlement.
5. Galvanizing Bath: Use not less than 98.0 percent zinc.
6. Zinc Coating Weight: Conform to Paragraph 6.1 of ASTM A123 and Table 1 of ASTM A153, as applicable.
7. Zinc Coating Surface Finish: Wipe down surfaces after dip to remove pin holes, scale, drips, runs and points. Finish shall be continuous, adherent, smooth and evenly distributed, free from defects detrimental to intended end use and finishing of coated product.
8. Zinc Coating Adhesion: Adhesion shall be sufficient to withstand normal handling during transport and erection.
9. Galvanizing Repair Compound: Premixed cold galvanizing compound for field touch-up of galvanized coatings by ZRC Worldwide GALVILITE, Marshfield, MA (800) 831-3275, or approved equal. Provide silvery-finish galvanic zinc-rich coating containing 95 percent zinc by weight in the dry film and conforming to Federal Specification DOD-P-21035A.
10. Portions Not to Receive Galvanizing: Protect portions of parts to be embedded in concrete from galvanizing, except galvanize anchors and sleeves built into concrete and masonry.

2.09 FINISHES - ALUMINUM

- A. Exterior Aluminum Surfaces: Class I natural anodized.
- B. Interior Aluminum Surfaces: Class I natural anodized.
- C. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.
- D. Apply one coat of bituminous paint to concealed aluminum surfaces in contact with cementitious or dissimilar materials.

2.10 FABRICATION TOLERANCES

- A. Squareness: 1/8 inch maximum difference in diagonal measurements.
- B. Maximum Offset Between Faces: 1/16 inch.
- C. Maximum Misalignment of Adjacent Members: 1/16 inch.
- D. Maximum Bow: 1/8 inch in 48 inches.
- E. Maximum Deviation From Plane: 1/16 inch in 48 inches.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

- A. Obtain Architect's review prior to site cutting or making adjustments not indicated on Drawings and reviewed shop drawings.
- B. Clean and strip primed steel items to bare metal where site welding is required.
- C. Supply setting templates to the appropriate entities for steel items required to be cast into concrete or embedded in masonry.
- D. Make provision for erection loads with temporary bracing. Keep work in alignment.
- E. Clean and prime field welds. Touch up galvanized steel with cold galvanizing compound.

3.03 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Provide for erection loads, and for sufficient temporary bracing to maintain true alignment until completion of erection and installation of permanent attachments.
- C. Field weld components indicated .
- D. Perform field welding in accordance with AWS D1.1/D1.1M.
- E. Obtain approval prior to site cutting or making adjustments not scheduled.
- F. After erection, prime welds, abrasions, and surfaces not shop primed or galvanized , except surfaces to be in contact with concrete.

3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per story, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

3.05 CLEANING AND TOUCH-UP

- A. Cleaning: Perform initial cleaning immediately after completion of installation. Prepare surfaces for finish painting as specified in Section 09 9000 - Painting.
- B. Galvanizing Touch-Up: Touch up galvanizing immediately after installation, including field welding. Prepare surface and apply cold galvanizing compound in compliance with the manufacturer's instructions and recommendations.
- C. Primer Paint Touch-Up: Touch up shop paint immediately after erection. Use products as specified in Section 09 9000 - Painting.
 - 1. Clean field welds, bolted joints, and areas where primer is damaged.
 - 2. Paint with material used for shop painting, minimum 3 mils dry film thickness.

END OF SECTION

SECTION 05 52 13
PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wall mounted handrails.
- B. Stair railings and guardrails.

1.02 RELATED REQUIREMENTS

- A. Section 05 50 00 - Metal Fabrications: Embedded items, welding and shop painting.
- B. Section 09 91 23 - Exterior Painting: Paint finish.

1.03 REFERENCE STANDARDS

- A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2009.
- B. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings; 2000 (Reapproved 2006).
- C. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); The Society for Protective Coatings; 2002 (Ed. 2004).

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate profiles, sizes, connection attachments, anchorage, size and type of fasteners, and accessories.
- C. Shop Drawings: Prepare shop drawings for all railing systems, including attachment.
 - 1. Conform to AISC Standards, except provisions for approval of dimensions by Architect and structural engineer shall not apply.
 - 2. Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories.
 - 3. Include erection drawings, elevations, and details where applicable.
 - 4. Indicate welded connections using standard AWS welding symbols. Indicate net weld lengths.

1.05 QUALITY ASSURANCE

- A. Welder's Qualifications: Welding shall be performed by certified welders qualified in accordance with procedures specified in AWS D1.1, using materials, procedures and equipment of the type required for this work.
- B. Coordination: Provide templates and sleeves for incorporation of embedded items into the work specified elsewhere herein.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Delivery, Storage and Handling, General: Protect products from deformation, marring, discoloration, soiling and corrosion.
- B. Storage: Store products in enclosed, well-ventilated spaces, not in contact with soil or vegetation and not subject to inclement weather.

PART 2 PRODUCTS

2.01 RAILINGS - GENERAL REQUIREMENTS

- A. Regulatory Requirements: Conform to California Building Code (CBC), Title 24, Part 2, Section 11B-505 as amended and adopted by authorities having jurisdiction.
 - 1. The top of the handrail grasping surface shall be mounted between 34 to 38 inches above the nosing of the treads or the ramp surface per CBC 11B-505.4.
 - 2. The handgrip portion of the handrails for stairs and ramps shall be not less than 1 ¼ inch, nor more than 1 ½ inch in cross sectional nominal dimension (1 ½ inch nominal diameter shall be tube not pipe) or a shape providing an equivalent gripping surface and shall be mounted 1 ½ inch clear from side walls. CBC 11B-505.7.
 - 3. All surfaces and welded joints of the grip portion of the handrails shall be ground smooth, with no sharp or abrasive corners, edges or surfaces. Gripping surfaces (top or sides) shall be uninterrupted by newel posts or other construction elements or obstructions. Edges shall have a minimum radius of 1/8 inch.
 - 4. Any wall or other surfaces adjacent to handrail shall be free of sharp or abrasive elements; CBC 11B-505.8.
 - 5. The top and bottom of the ramp or stair shall have a 12-inch minimum continuous extension per CBC 11B-505.10.
 - 6. At least one side of handrail must be in direction of travel, perpendicular to the stair nosing per CBC 11B-505.2.1.
- B. Design, fabricate, and test railing assemblies in accordance with the most stringent requirements of ASTM E985 and applicable local code.
- C. Allow for expansion and contraction of members and building movement without damage to connections or members.
- D. Dimensions: See drawings for configurations and heights.
 - 1. Top Rails and Wall Rails: 1-1/2 inches outside diameter, round.
 - 2. Intermediate Rails: 1-1/2 inches diameter, round.
 - 3. Posts: 1-1/2 inches outside diameter, round.
- E. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
 - 1. For anchorage to concrete, provide inserts to be cast into concrete, for bolting anchors.
 - 2. For anchorage to masonry, provide brackets to be embedded in masonry, for bolting anchors.
 - 3. For anchorage to stud walls, provide backing plates, for bolting anchors.
- F. Provide mechanical and welding fittings where indicated to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.02 STEEL RAILING SYSTEM

- A. Steel Pipe: ASTM A 53/A 53M, Grade B Schedule 40, black and galvanized finish, as indicated, seamless or welded.
- B. Steel Bars and Bar Sized Shapes: ASTM A36 Grade 65.
- C. Cast Iron: ASTM A48, Class 30 or higher, soft gray iron.
- D. Malleable Iron Casting: ASTM A47, Grade 32510.
- E. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.
 - 1. Welding Rods: Series E60 or E70, conforming to AWS D1.1.
- F. Straight Splice Connectors: Steel concealed spigots.
- G. Galvanizing: In accordance with requirements of ASTM A123/A123M.
 - 1. Touch-Up Primer for Galvanized Surfaces: SSPC-Paint 20, Type I - Inorganic.

2.03 ANCHORS, FASTENERS AND ACCESSORY MATERIALS

- A. Exposed Anchors and Fasteners: Same material, color and finish as the metal to which applied.
- B. Type, Size and Spacing: Unless otherwise indicated, provide fasteners of type, grade and class required for intended use and sized and spaced as required for loads and substrate.
- C. Screw Head, Typical: Unless otherwise noted, exposed screws shall be phillips oval or flat head, countersunk.
- D. Standard Bolts and Nuts, Steel: ASTM A307, Grade A, hexagonal head.
- E. Plain Steel Screws: FS FF-S-85, FS FF-S-92 and FS FF-S-111; type and grade best suited for the purpose.
- F. Plain Steel Washers: FS FF-W-92, round, carbon steel.
- G. Lock Washers: FS FF-W-84, helical spring, carbon steel.
- H. Concrete Anchors: As specified in Section 05 50 00 - Metal Fabrications.
- I. Grout: As specified in Section 05 50 00 - Metal Fabrications.
- J. Handrail Wall Brackets: Cast steel type or profile as detailed on Drawings.

2.04 FABRICATION

- A. Fabricate railings in accordance with NAAMM Pipe Railing Manual and as required for specified design requirements. Provide stock and tubing and manufactured components sized and arranged as indicated on Drawings and specified herein.
- B. Accurately form components to suit specific project conditions and for proper connection to building structure.
 - 1. Prior to fabrication, field verify dimensions and details of construction. Immediately report variances in writing to Architect.
- C. Fit and shop assemble components in largest practical sizes for delivery to site.
- D. Fabricate components with joints tightly fitted and secured. Provide spigots and sleeves to accommodate site assembly and installation.
 - 1. Internal Stiffeners: Cast iron, malleable iron, pipe or tube. Fit snugly.
 - 2. Dimensions, Spacing and Configuration: As shown on Drawings and as specified herein.
 - a. Top Rails: Run continuously over posts, level and not less than minimum height indicated on the Drawings and required by California Building Code (CBC).
 - b. Vertical Members: Lay out as shown, evenly spacing verticals in each run. Where two runs are adjacent to each other, align verticals on each side. Set posts as required for design requirements and a maximum of 60-inches on center. Fabricate verticals for plumb and true installation.
 - c. Bottom Railing: Parallel to top rail and with floor surface or stair stringer, as applicable.
 - d. Alignment: Centerline of members within each railing run shall be in same vertical plane.
 - e. Oversize sleeve for removable railings as indicated in Section 05 50 00 - Metal Fabrications.
 - 3. Cutting and Fitting:
 - a. Power cut throughout; gas cutting not permitted at joint. Gas cutting may be used if not closer than 6-inches from actual joint.
 - b. Cope to fit intersecting members. Bevel ends to receive full fillet weld.
 - c. Provide corners neatly coped, welded and ground.
 - d. Provide connections with fittings or, at Contractor's option, neatly coped, welded and ground.
 - 4. Fabrication:
 - a. Fabricate railings in largest practicable sections to minimize field joints.
 - b. Fabricate rails in true, straight alignment.
 - c. Provide for field-welded joints. Fabricate to hairline tolerances before welding.
 - d. Grind projections, terminations and edges smooth.
 - e. Provide closures on exposed ends.

- f. Do not use exposed fastening plates except as specifically detailed. Use concealed plug or direct welding as applicable.
 - 5. Welding: Provide backup or stiffeners at joints to hold joint in perfect alignment during welding. Weld all around joint. Grind all welds smooth and dressed, without sharp or abrasive corners, edges or surfaces.
- E. Welded Joints:
- 1. Exterior Components: Continuously seal joined pieces by continuous welds. Drill condensate drainage holes at bottom of members at locations that will not encourage water intrusion.
 - 2. Interior Components: Continuously seal joined pieces by continuous welds.
 - 3. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius (1/8 inch).

2.05 FINISHES - STEEL

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Galvanizing of Non-structural Items: Galvanize after fabrication to ASTM A123/A123M requirements.
- C. Galvanizing
 - 1. General: All exposed to the weather ferrous metal fabrications, unless otherwise specified or indicated on the Drawings, shall be galvanized in accordance with applicable referenced ASTM standards. Galvanize products after fabrication. Hot dip galvanize only, unless otherwise specified.
 - 2. Product Fabrication, General: Fabricate products to be galvanized in accordance with Recommended Details for Galvanized Structures by American Hot Dip Galvanizers Association, Inc.
 - a. Comply with applicable portions of ASTM A392 and A491, except as otherwise specified herein. Avoid techniques which could cause distortion or embrittlement of steel.
 - b. Notify Architect before and during submittals review and before fabrication proceeds, of potential warpage problems which may require design modification.
 - 3. Product Preparation for Galvanizing:
 - a. Remove welding slag and burrs.
 - b. Provide holes and lifting lugs as necessary for handling during galvanizing process and only at positions approved by Architect.
 - c. Remove grease, oil, paint and other deleterious materials.
 - d. Do not use unsuitable marking paints on steel prior to galvanizing.
 - e. Use blast cleaning or other method as necessary if surface contaminants and coatings cannot be removed by normal chemical cleaning process.
 - 4. Surface preparation:
 - a. Pre-clean using caustic bath, acid pickle and flux.
 - b. Alternatively, pre-clean by blast cleaning and fluxing.
 - c. Conform to ASTM A123, as applicable, for steel members, fabrications and assemblies.
 - d. Conform to ASTM A153 for bolts, nuts and washers, and steel hardware components.
 - e. Conform to ASTM A392 for protection against embrittlement.
 - 5. Galvanizing Bath: Use not less than 98.0 percent zinc.
 - 6. Zinc Coating Weight: Conform to Paragraph 6.1 of ASTM A123 and Table 1 of ASTM A153, as applicable.
 - 7. Zinc Coating Surface Finish: Wipe down surfaces after dip to remove pin holes, scale, drips, runs and points. Finish shall be continuous, adherent, smooth and evenly distributed, free from defects detrimental to intended end use and finishing of coated product.
 - 8. Zinc Coating Adhesion: Adhesion shall be sufficient to withstand normal handling during transport and erection.
 - 9. Galvanizing Repair Compound: Premixed cold galvanizing compound for field touch-up of galvanized coatings by ZRC Worldwide GALVILITE, Marshfield, MA (800) 831-3275, or approved equal. Provide silvery-finish galvanic zinc-rich coating containing 95 percent zinc by weight in the dry film and conforming to Federal Specification DOD-P-21035A.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Field Inspection of Fabricated Products: Prior to installation, inspect products for damage and verify markings and dimensions against reviewed submittals.
- C. Environmental Conditions: Do not install products intended for interior locations when spaces are uncovered and unprotected from inclement weather.
- D. Coordination: Coordinate fabrication and installation of steel pipe and tube railings so that related Work accurately and properly joins.

3.02 PREPARATION

- A. Obtain Architect's review prior to site cutting or making adjustments not indicated on shop drawings.
- B. Clean and strip primed steel items to bare metal where site welding is required.
- C. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.
- D. Apply one coat of bituminous paint to concealed aluminum surfaces that will be in contact with cementitious or dissimilar materials.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- C. Anchor railings securely to structure.
- D. Field weld anchors as indicated on drawings. Touch-up welds with primer. Grind welds smooth.
- E. Conceal anchor bolts and screws whenever possible. Where not concealed, use flush countersunk fastenings.
- F. Wall Railings Installation, General: Secure handrails to wall with wall brackets and end return fittings.
 - 1. Provide brackets with 1-1/2 inch clearance from inside face of handrail and finished wall surface.
 - 2. Locate brackets as indicated, or if not indicated, at spacing required to support structural loads.
 - 3. Secure wall brackets to building construction as specified below.
 - 4. Secure railing to bracket with pre-drilled hole for exposed bolt anchorage.
- G. Securing Railings to Metal Stud Framed Walls: Anchor brackets and fittings directly to steel framing or to concealed sheet steel backing or to concealed anchors, using self-tapping screws of size and type necessary to support structural loads.
- H. Securing Railings to Wood Stud Framed Walls as Applicable: Anchor brackets and fittings directly to minimum 4 x framing, or minimum 2 x solid blocking with wood screws or lag bolts as specified in Section 05 50 00 - Metal Fabrications.

3.04 TOLERANCES

- A. Code required dimensions indicated on Drawings as minimum are absolute. No tolerances are allowed less than this dimension.
- B. Code required dimensions indicated on Drawings as maximum are absolute. No tolerances are allowed greater than this dimension.
- C. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.
- D. Maximum Offset From True Alignment: 1/4 inch.
- E. Maximum Out-of-Position: 1/4 inch.

3.05 CLEANING AND PROTECTION

- A. Galvanizing Repair Compound: Premixed cold galvanizing compound for field touch-up of galvanized coatings by ZRC Worldwide GALVILITE, Marshfield, MA (800/831-3275), or approved equal. Provide silvery-finish galvanic zinc-rich coating containing 95 percent zinc by weight in the dry film and conforming to Federal Specification DOD-P-21035A
- B. Finish Touch-Up: Immediately after installation of stairs, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touch-up of field painted surfaces. Apply paint by brush or spray to provide a minimum dry film thickness of 2.0 mils.
- C. Cleaning: Clean and dress all field welds, bolted connections, and abraded areas of galvanizing or shop paint on miscellaneous metal. Materials specified in Section 09 91 23 - Exterior Painting.

END OF SECTION

SECTION 07 62 00
FLASHING AND SHEET METAL

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Flashing and sheet metal components for building construction.

1.02 RELATED SECTIONS

- A. Section 07 90 05 - Joint Sealers: Sealant products and installation requirements applicable to flashing and sheet metal.
- B. Section 09 91 23 - Exterior Painting: Field finish painting of exposed flashing and sheet metal except prefinished systems.

1.03 REFERENCES

- A. National Roofing Contractors Association (NRCA):
 - 1. NRCA - Roofing and Waterproofing Manual.
 - 2. NRCA - Steep Roofing Manual.
- B. Sheet Metal and Air Conditioning Contractors National Association (SMACNA) - Architectural Sheet Metal Manual, current edition.
- C. American Society for Testing and Materials (ASTM).

1.04 SUBMITTALS

- A. Product Data: For flashing, sheet metal, and accessories; manufacturer's technical product data, installation instructions and general recommendations for each specified sheet material and fabricated product.
- B. Shop Drawings:
 - 1. Indicate layout, material profiles, methods of joining, and fastening and anchorages details, and installation details.
 - 2. Include major counterflashings, trim/fascia units and expansion joint systems.
 - 3. Include gutters, downspouts and scuppers.
 - 4. Describe material profile, jointing pattern, jointing details, fastening methods, and installation details.
 - 5. Provide layouts at 1/4" = 1'-0" scale minimum and details at 3" = 1'-0" scale minimum.
 - 6. Scaled manufacturer's catalog data may be submitted for standard production, factory-fabricated products.

1.05 QUALITY ASSURANCE

- A. Fabricator and Installer: Company specializing in flashing and sheet metal work with minimum of five years of verifiable, experience on commercial and institutional projects.
- B. Pre-Application Conference: Attend roofing pre-application conference with Contractor, roofing subcontractor, District Representative and Architect to establish coordination of parties and full understanding of construction documents.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Package and protect materials during shipment to avoid dampness and staining. Uncrate and inspect materials for damage, dampness, and staining upon delivery to the Project site. Remove from the site and replace damaged materials that cannot be restored to like-new condition.
- B. Storage: Store materials in dry, weather-tight, ventilated areas until immediately before installation. Stack preformed and prefinished material to prevent twisting, bending, or abrasion, and to provide

ventilation. Prevent contact with materials during storage which may cause discoloration, staining, or damage.

- C. Handling: Handle sheet metal items to avoid damage to surfaces, edges, and ends.

1.07 PROJECT CONDITIONS

- A. Coordination: Coordinate Work specified in this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance and durability of Work and protection of materials and finishes.

PART 2 - PRODUCTS

2.01 FLASHING AND SHEET METAL MATERIALS

- A. Sheet Metal Materials, General: Meet or exceed minimum requirements and recommendations of reference standards.
- B. Zinc-Coated (Galvanized) Steel: Commercial quality sheet steel with 0.20 percent copper, ASTM A653; Coating Designation G60 hot-dip galvanized typically and G90 for parapet caps, mill phosphatized where indicated for painting; 20 gage minimum except as otherwise indicated on the Drawings or recommended by SMACNA Architectural Sheet Metal Manual.
- C. Stainless Steel: AISI Type 302 or 304, complying with ASTM A167, 2D finish, fully annealed, dead-soft temper, except where harder temper required for forming or performance; 0.0156-inch thick (28 gage) except as otherwise indicated. Provide smooth finish typically.
- D. Lead: ASTM B749, Type L51121, copper-bearing sheet lead, minimum 4 lb/sq ft (0.0625-inch thick) except not less than 6 lb/sq ft (0.0937-inch thick) for burning (welding) unless otherwise indicated.
- E. Zinc Sheet and Strip: ASTM B69, Type I, minimum 0.024-inch thick.
- F. Prefinished Sheet Metal: Form panels and flashings from hot-dip zinc coated stainless steel sheet or hot-dip aluminum-zinc alloy coated steel sheet; prefinished with fluorocarbon coating system on both sides. Coatings shall be applied using the continuous coil coating process. Panel finish shall be smooth.
 - 1. Hot-Dip Zinc Coated Steel Sheet: ASTM A924 and A653, Grade 40, 22 gage coated in accordance with coating designation G60; cleaned; and phosphate treated for maximum coating adherence.
 - 2. Hot-Dip Aluminum-Zinc Alloy Coated Steel Sheet: ASTM A924 and A792, 22 gage aluminum zinc-alloy coated in accordance with ASTM A792 coating class AZ55; cleaned and chromate treated for maximum coating adherence.
 - 3. Acceptable Manufacturer's (or approved equal):
 - a. Metal Sales Manufacturing Corp.

2.02 ACCESSORY MATERIALS

- A. Accessory Materials: Provide accessory materials and other items essential to complete the sheet metal installation. Metal accessories shall be made of the same materials as the items to which they are applied.
- B. Underlayment: ASTM D2626 Type 1, No. 30 asphalt saturated roofing felt (commonly referred to as #30 felt).
- C. Paper Slip Sheet: 5-lb. rosin-sized building paper.
- D. Polyethylene Underlayment: Reinforced polyethylene sheet, minimum 6 mils thick, resistant to decay when tested in accordance with ASTM E154.
- E. Fasteners, General: Same metal as flashing/sheet metal or other non-corrosive metal as recommended by sheet manufacturer. Match finish of exposed heads with material being fastened. Provide soft neoprene washers at exposed fasteners.
 - 1. Sheet steel fasteners: Galvanized steel or stainless steel.
 - 2. Fasteners to wood substrate: See details on Drawings. Use full-threaded screws unless otherwise indicated.
 - 3. Fasteners to concrete, masonry and metal substrates: Refer to Section 05 50 00 - Metal Fabrications for requirements. See details on Drawings.

- a. Use threaded concrete and masonry fasteners typically at concrete and solid masonry substrates.
 - b. Use self-drilling, self-threading fasteners typically at metal substrates.
- F. Solder:
- 1. For use with steel, ASTM B32, Grade Sn50, used with rosin flux.
 - 2. For use with stainless steel, ASTM B32, Grade Sn60, used with an acid flux of type recommended by stainless-steel sheet manufacturer; use a non-corrosive rosin flux over tinned surfaces.
- G. Flux: FS O-F-506.
- H. Shop Primer Paint: Coordinate primer with finish paint and coating, as applicable, to provide sound foundation for field-applied topcoats despite prolonged exposure during construction.
- 1. Shop primer for galvanized steel, for exposed exterior locations: Themec Series 66 Epoxyline Two-Part Catalyzed Epoxy Coating, or equal.
 - 2. Shop primer for ferrous metal at concealed exterior locations and for interior locations: Themec 90E-92, ethyl silicate zinc-rich primer.
- I. Field Primer and Finish Paints: As specified in Section 09 91 23 - Exterior Painting.
- J. Bituminous Coating: Themec 46-450 Heavy Tnemecol or equal, high-build mineral-filled coal tar pitch coating, or a cold-applied asphalt mastic complying with SSPC-Paint 12, except containing no asbestos fibers.
- K. Mastic Sealant: Polyisobutylene; non-hardening, non-skinning, non-drying, non-migrating sealant, as specified in Section 07 90 05 - Joint Sealers.
- L. Elastomeric Sealant: Generic type recommended by manufacturer of metal and fabricator of components being sealed and complying with requirements for joint sealants as specified in Section 07 90 05 - Joint Sealers.
- M. Epoxy Seam Sealer: 2-part non-corrosive metal seam cementing compound, recommended by metal manufacturer for exterior/interior non-moving joints including riveted joints.
- N. Adhesives: Type recommended by flashing sheet manufacturer for waterproof/weather-resistant seaming and adhesive application of flashing sheet.
- O. Elastic Flashing Filler: Closed-cell polyethylene or other soft closed-cell material recommended by elastic flashing manufacturer as filler under flashing loops to ensure movement with minimum stress on flashing sheet.
- P. Roofing Cement: ASTM D2822, asphaltic base cement, free of asbestos.
- Q. Plastic Cement: FS SS-C-153, Type I, asphaltic base cement.
- R. Lead Flashing: 4# lead with 6 to 7 percent antimony content.
- S. Miscellaneous Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of the Work, matching or compatible with material being installed, non-corrosive, size and gage required for performance.

2.03 FABRICATION

- A. Shop Fabrication, General: Shop-fabricate sheet metal to greatest extent possible. Comply with details shown on Drawings and with applicable requirements of referenced standards and other recognized industry practices to accommodate local climatic considerations.
- 1. Fabricate sheet metal for waterproof and weather-resistant performance, with expansion provisions for running work, sufficient to permanently prevent leakage, damage, or deterioration of the Work.
 - 2. Fabricate sheet metal items of the materials specified below. Form sheet metal Work to fit substrates.
 - 3. Form exposed sheet metal work without excessive oil-canning, buckling, and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.
 - 4. Form pieces and sections in longest practical lengths, true to shape, accurate in size, square, and free from distortion or defects.

5. Typically, provide sheet metal items in 8- to 10-foot lengths. Single pieces less than 8-feet long may be used to connect to factory-fabricated inside and outside corners, and at ends of runs.
 6. Fabricate vertical faces with bottom edge formed outward 1/4-inch and hemmed to form drip, fabricate to allow toe to extend 2 inches over roofing.
- B. Edges: Hem exposed edges on underside 1/2-inch. Miter and seam corners.
 - C. Corners: Fabricated from one piece with minimum 18-inch long legs; lock seam and solder for rigidity.
 - D. Seams: Typically fabricate non-moving seams in sheet metal with flat lock seams.
 1. Typical Seams: Overlapped and sealed seams.
 2. Coping Seams: Lock seams, flattened.
 3. Seams, Horizontal to Vertical Transitions: Solder joints.
 4. Soldered seams: Tin edges to be seamed, form seams, and solder.
 - E. Configurations: As indicated on Drawings and as referenced to SMACNA Architectural Sheet Metal Manual.
 - F. Expansion Provisions: Where lapped or bayonet-type expansion provisions in sheet metal Work cannot be used or would not be sufficiently waterproof and weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1-inch deep, filled with mastic sealant (concealed within joints).
 1. Provide expansion joints per SMACNA Standards, but not greater than 30 feet on center.
 - G. Sealant Joints: Where movable, non-expansion type joints are indicated or required for proper performance of sheet metal Work, form metal to provide for proper installation of elastomeric sealant, in compliance with referenced SMACNA standards.
 - H. Cleats and Starter Strips: Fabricated of same material as sheet metal fabrication, minimum 4-inches wide, except at continuous strips, interlockable with sheet metal fabrication. Typically use continuous strips.
 - I. Exposed Sheet Metal Items: Galvanized sheet steel.
 - J. Metal Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.
 - K. Standard Products: Standard production products, conforming substantially to details and design as shown, intended, or as required to provide continued watertightness, are acceptable for counterflashing, reglets, gravel stops, copings and edging in stock patterns.
 - L. Pitch Pans: SMACNA Manual Figure 4-16. Set pan on top of roof plies in bed of plastic cement, to be stripped in by roofer. Fill pitch pan to within 1-inch of top with non-shrink grout and fill remainder with modified bitumen. Provide sheet metal umbrella in unprotected locations. Provide 3-inch upstand and 4-inch horizontal flange.

2.04 SCUPPERS AND OVERFLOWS

- A. Scuppers/Overflows: 24 gage galvanized sheet metal, as indicated on Drawings and complying with referenced SMACNA Manual Figure number. Fabricate with minimum 6-inch flanges.

2.05 DOWNSPOUTS

- A. Downspouts, Exposed but not Accessible to Facility Occupants: Rectangular shape and size as indicated on Drawings, gage as indicated on the Drawings, if not indicated, minimum 16 gage, galvanized or prefinished to match adjacent sheet steel, with brackets, reinforcing and internal diverters as indicated on the Drawings.
 1. Fabricate downspouts in approximately 10-foot lengths.
 2. Provide end joints telescoped not less than 1-1/2 inches and with flat lock seams.
 3. Hold downspouts in position 1-inch clear of wall with 1/16-inch by 1-inch galvanized steel straps spaced not more than 10 feet on center securely attached to wall.
- B. Strainers 10 gage galvanized steel wire basket type, riveted and soldered into place.

- C. Downspout Terminations: Provide downspout terminations at grade as indicated on the Drawings. Coordinate installation detail to ensure that water is directed onto concrete paving or concrete splashblock. Provide connection to underground storm drain system where indicated on Drawings.
- D. Downspout Strainers: 10 gage galvanized steel wire basket type, riveted and soldered into place.

2.06 GUTTERS

- A. Gutters: Rectangular shape, 24 gage galvanized or prefinished to match adjacent sheet metal, as indicated on Drawings and conforming to SMACNA Manual Figures 1-12 through 1-19 (to match existing). Use high back gutters with back a minimum of 1-inch higher than front. At sloped roofs, extend roof edge 6-inch up under roofing underlayment and attach by cleats on 12-inch centers. Provide lap type expansion joint at 30 foot centers maximum. Provide straps to support top of gutter at 3 foot centers. Provide joints at 10 foot centers maximum, lap 1-inch, rivet on 2-inch centers and solder.
 - 1. Provide 1/4-inch by 1-1/2 inch cradles at 36-inch centers, without cradle to gutter mechanical fastening to allow for expansion.
- B. At steel pipe downspouts, provide 10 gage galvanized steel wire basket type strained, riveted and soldered into place.

2.07 REGLETS

- A. Specified Manufacturer: Fry Reglet Corporation, Alhambra, CA (818/289-4744).
- B. Acceptable Manufacturers:
 - 1. O'Keefes, Inc., Aluminum Building Products, San Francisco, CA (415/822-4222 or 800/227-3305).
 - 2. MM Systems Corporation, Tucker, GA (404/938-7570 or 800/241-3460).
 - 3. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Reglets and Flashing, General: Springlok Flashing, as manufactured by Fry Reglet Corporation, or equal, formed metal reglet with snap-in metal counter-flashing, factory-fabricated, with a minimum opening of 1/4-inch and a depth of 1-1/4 inches.
 - 1. Reglet material: 24 gage galvanized steel.
 - 2. Flashing material: 0.020-inch Type 302 stainless steel.
 - 3. End laps: Factory-formed, 1-inch at reglets and 3-inch at flashings.
 - 4. Corners: Provide built-up mitered corner pieces for internal and external angles.
 - 5. Wind clips: Provide Fry Windlok Clip, sheet metal clips to be secured to wall prior to installing flashing in reglet, and to be bent up over bottom edge of flashing.
- D. Reglets:
 - 1. Surface-applied, Fry Springlok Flashing System Type SM, or equal.
 - 2. Recessed, Fry Springlok Flashing System Type ST, or equal.
- E. Mounting Provisions: Provide slotted mounting holes spaced 16-inches on center for fastening reglet to wall.
- F. Accessories:
 - 1. Corners: Factory-manufactured, mitered inside and outside corners.
 - 2. Splices: Factory-manufactured, integral component of reglet and flashing system.

2.08 COPING AND CAP FLASHING

- A. Coping and caps of type and profile indicated on Drawings, 20 gage galvanized sheet metal, with integral expansion.

2.09 DRIPS AT DOORS AND WINDOWS

- A. Provide 20 gage galvanized sheet metal drips at head of all exterior doors and windows where no roof or overhang protection occurs. Extend drips 2 inches beyond jambs, unless noted otherwise.

2.10 SHEET METAL FINISH (GALVANIZED)

- A. Preparation: Shop prepare metal surfaces for field painting by bonderizing or priming. Pretreat galvanized metal as recommended by primer paint manufacturer.
- B. Sheet Metal Finish: Unless otherwise indicated, all exposed exterior sheet metal, except stainless steel or factory finish painted steel, is intended to receive field-applied special coating finish, as noted on the Drawings.
- C. Priming: All exposed sheet metal, except stainless steel, is intended for field finish painting. Shop prime all sheet metal indicated to be field painted. Exposed surfaces shall be ready for field finish painting as specified in 09 91 23 - Exterior Painting, as applicable.
- D. Backpriming: Backpaint concealed metal surfaces with bituminous coating, to a minimum dry film thickness of 15 mils.
- E. Fasteners: Exposed fasteners shall match finish of surrounding material.

2.11 SHEET METAL FINISH (PREFINISHED)

- A. Primer: Finish coating formulator's standard epoxy primer as recommended for the substrate and coating process used.
- B. Fluorocarbon Finish: Coating which contains not less than 70% Kynar 500 as manufactured by Atochem North America, Inc., or Hylar 5000 as manufactured by Ausimont USA, Inc., polyvinylidene fluoride (PVDF) resin meeting the requirement of AAMA 605.2-90.
 - 1. Acceptable products:
 - a. Akzo; Trinar.
 - b. Glidden Coatings and Resins; Nubelar.
 - c. Morton International; Fluoroceram.
 - d. PPG Industries; Duranar.
 - e. Valspar; Fluoropan.
- C. Protective Film: Apply a strippable plastic film for protection of the fluorocarbon coating during fabrication, shipping and storage.
- D. Application:
 - 1. Primer: Prime the cleaned and treated surfaces with baked-on epoxy primer applied to achieve a dry film thickness of not less than 0.2 mils.
 - 2. Fluorocarbon Finish: Finish the prime surface using the coil coating process to achieve a dry film thickness of not less than 0.8 mils and oven bake at a temperature of not less than 475 degrees F in accordance with the coating formulators written procedures.
- E. Color: Special colors indicated on Exterior Color Schedule. Provide coating materials for all items specified to be coated, by one manufacturer.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Field measure site conditions prior to fabricating Work.
- B. Install starter and edge strips, and cleats before starting installation.
- C. Verify roof openings, curbs, pipes, sleeves, ducts and vents through roof are solidly set, cant strips and reglets in place and nailing strips located.
- D. Verify membrane termination and base flashings in place, sealed and secure.

3.02 INSTALLATION, GENERAL

- A. Locations and Details: As indicated on Drawings. If conditions are not indicated, generally provide sheet metal flashing in the angles formed where roof decks abut walls, curbs, ventilators, pipes, or other vertical surfaces and wherever indicated and necessary to make the Work watertight and weathertight.

- B. Installation, General: Except as otherwise indicated, conform to Drawing details and with referenced SMACNA - Architectural Sheet Metal Manual details. If details or conditions are not indicated, comply with standard details and recommended practices in SMACNA - Architectural Sheet Metal Manual, and referenced industry standards. For proprietary products, conform to manufacturer's installation instructions and recommendations.
1. Make lines, profiles, arrises, and angles accurate, sharp and true. Make corners square, surfaces true and straight in planes.
 2. Exposed surfaces shall be free from visible wave, warp, and buckle, and tool marks. Fold back exposed edges neatly to form a 1/2-inch hem on the concealed side. Make sheet metal exposed to the weather watertight with provisions for expansion and contraction.
 3. Anchor sheet metal fabrications securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated.
 4. Install sheet metal flashing and trim with laps, joints, and seams that will be permanently watertight and weatherproof. Provide lapped and sealed joints only where indicated and where approved by the Architect.
 5. Seal metal joints watertight. Apply plastic cement compound between metal flashings and felt flashings.
- C. Cleats and Starter Strips:
1. Provide cleats for sheet metal where indicated and also where sheet metal is 18-inches and over in width.
 2. Unless continuous cleat is indicated, space cleats evenly not over 12-inches on center, unless otherwise specified or indicated.
 3. Unless otherwise specified, cleats shall be not less than 2-inches wide by 3-inches long and of the same material and thickness as the sheet metal being installed.
 4. Secure one end of the cleat with two fasteners, with cleat folded back over the fastener head.
 5. Lock the other end into the seam.
 6. Pre-tin cleats for soldered seams.
- D. Flanges: Bed flanges of sheet metal fabrications in a thick coat of bituminous roofing cement where required for waterproof performance.
- E. Seams: Straight and uniform in width and height with no solder showing on the face.
1. Flat-lock seams: Finish not less than 3/4-inch wide.
 2. Lap seams: Finish soldered seams not less than one-inch wide. Overlap seams, not soldered, shall be not less than 3-inches wide.
 3. Loose-lock expansion seams: Not less than 3 inches wide; provide minimum 1-inch movement within the joint. Completely fill the joints with the specified sealant, applied at not less than 1/8-inch thick bed. Sealants are specified in Section 07 90 05 - Joint Sealers.
 4. Standing seams: Not less than one inch high, double locked without solder.
 5. Flat seams: Make seams in the direction of the flow.
- F. Bolts, Rivets, and Screws: Install bolts, rivets, and screws where indicated or necessary. Provide compatible washers to protect surface of sheet metal and to provide a watertight connection.
1. Install prefinished items with matching colored pop rivets. Provide tape and sealants as recommended by manufacturer.
- G. Fastening: Restrict screwing and nailing of sheet metal generally to sheet metal having a maximum width of 18-inches.
1. Confine screwing and nailing of flashing to one edge only.
 2. Space fasteners evenly not over 3-inches on centers and approximately 1/2-inch from edge, unless otherwise specified or indicated.
 3. Face fastening will not be accepted at locations to public view.
- H. Soldering:
1. Clean and flux metals in seams before soldering.
 2. Pre-tin edges of sheet metals before soldering.

3. Solder immediately after application of the flux. Slowly solder with well-heated soldering irons so as to thoroughly heat the seams and completely sweat the solder through the full width of the seam.
 4. Solder metal joints watertight for full metal surface contact.
 5. Upon completion of soldering, thoroughly clean sheet metal of acid flux residue, using a neutralizing solution of washing soda in water, and rinse with clean water.
- I. Expansion Control: Provide for expansion and contraction of sheet metal as recommended in reference standards.
1. Sheet metal shall accommodate thermal expansion and contraction resulting from an ambient temperature differential of 120 degrees F, which may result in a metal surface temperature range of 180 degrees F, without causing buckling, excessive stresses on structural elements or fasteners, stresses on glazing, failure of seals, reduction of performance, or other detrimental effects on appearance and performance.
 2. Provide expansion and contraction control joints at not more than 40-foot intervals typically, except for copings, gravel stops and other roof edge terminations.
 3. For copings, gravel stops and other roof edge terminations, provide expansion and contraction control joints at 10 feet on center maximum.
 4. Space joints evenly.
 5. Where the distance between the last expansion joint and the end of the continuous run is more than half the required interval, provide an additional joint.
- J. Expansion Joints Installation: Screw flanges of expansion joint units to curb nailers, at maximum spacing of 6-inches on center. Fabricate seams at joints between units with minimum 3-inch overlap, to form a continuous, waterproof system.
- K. Protection from Contact with Dissimilar Materials:
1. Metal surfaces: Coat surfaces in contact with mortar, concrete, or other cementitious materials, with alkali-resistant bituminous coating.
 2. Dissimilar metals: Apply 7-1/2 mil minimum dry film thick coating of bituminous paint to each contacting face of dissimilar metals, for net 15 mil minimum thickness of coating.
 3. Wood or other absorptive materials: Paint surfaces that may become repeatedly wet and in contact with metal with heavy coat of bituminous coating.

3.03 FLASHINGS AND COUNTERFLASHINGS INSTALLATION

- A. Flashings Installation, General: Fit flashings tight in place. Secure flashings in place using concealed fasteners. Use exposed fasteners only in locations approved by Architect.
- B. Reglets Installation: Install reglets true to lines and levels, located minimum 7-inches above cant at high point of roof decks. Install reglets to receive counterflashing in manner and by methods indicated. Seal top of surface-applied reglets with sealant, as specified in Section 07 9005 - Joint Sealers.
- C. Counterflashings Installation: Install counterflashing in reglets to form tight fit, either by snap-in seal arrangement or by securing in place with lead wedges spaced 18-inches on center maximum. Pack remaining spaces with lead wool.
1. Except where indicated or specified otherwise, insert counterflashing in reglets, extending down vertical surfaces over upturned vertical leg of base flashings not less than 3-inches.
 2. Form counterflashings to required shapes before installation.
 3. Lengths of metal counterflashings shall not exceed 10 feet.
 4. Where stepped counterflashings are required, counterflashing may be installed in short lengths or may be of the preformed one-piece type.
 5. Provide factory- or shop-form corners not less than 12-inches from the angle.
 6. Provide end laps in counterflashings not less than 3-inches and make laps weathertight with sealant.
 7. Turn up concealed edge of counterflashings built into masonry or concrete walls not less than 1/4-inch and extend not less than 2-inches into wall.
 8. Fold exposed edges of counterflashings 1/2-inch.
 9. Install counterflashing to provide a spring action against base flashing.
- D. Thru-Wall Flashing
1. Start flashing 1/2-inch behind exposed face of wall and extend through wall.

2. Lap-seam joints and seal with sealant.
 3. Provide sealant around penetrations through flashing.
- E. Flashing at Roof Penetrations and Equipment Supports: Provide metal flashing for all pipes, ducts, and conduits projecting through the roof surface and for equipment supports, guy wire anchors, and similar items supported by or attached to the roof deck. Goose-necks, rainhoods, power roof ventilators, and other plumbing, HVAC and electrical products, as appropriate.
1. Single Pipe Vents: Provide lead flashing as indicated on Drawings.
 - a. Set flange of sleeve in bituminous plastic cement and nail 3-inches on centers.
 - b. Bend the top of sleeve over and extend down into the vent pipe a minimum of 2-inches.
 - c. For long runs or long rises above the deck, where it is impractical to cover the vent pipe with lead, use a two-piece formed galvanized sheet metal housing.
 - d. Set metal housing with a metal sleeve having a 4-inch roof flange in bituminous plastic cement and nailed 3-inches on centers.
 - e. Extend sleeve a minimum of 8-inches above the roof deck and lapped a minimum of 3-inches by a metal hood secured to the vent pipe by a draw band.
 - f. Seal the area of hood in contact with vent pipe with specified sealant. Sealants are specified in Section 07 90 05 - Joint Sealers.
 2. Roof Penetration Flashing:
 - a. Base Flashing: Extend flange onto roof 6-inches minimum away from penetration. Extend flange upward around penetration to at least 8-inches above roofing felts. Fold back upper and side roof flange edges 1/2-inch minimum. Lap and solder joints.
 - b. Counterflashing: Overlap base flashing 1-inch minimum with storm collar sloped away from penetration. Secure to penetration with draw band and sealant.
 3. Equipment Support and Pad Flashing:
 - a. Fully cap support and pad.
 - b. Overlap base flashing 4-inches.
 - c. Lap and solder joints.
 - d. Provide sealant around penetrations through flashing.

3.04 SCUPPERS AND OVERFLOWS INSTALLATION

- A. Scuppers and Overflows Installation:
1. Mechanically fasten and solder joints.
 2. Fold outside edges under 1/2-inch on all sides.
 3. Join the bottom edge to closure flange, where necessary, and form ridge to act as a gravel stop around scupper inlet.
 4. Coat interior of scuppers and overflows with bituminous plastic cement.

3.05 DOWNSPOUTS INSTALLATION

- A. Downspouts Installation:
1. Install downspouts not less than 1-inch clear from walls.
 2. Fasten downspouts to walls at top, bottom, and at an intermediate point not exceeding 5-feet on center, with leader straps or concealed rack-and-pin type fasteners.
- B. Downspout Terminations: Install as indicated on the Drawings.

3.06 CLEANING AND PREPARATION FOR FIELD PAINTING

- A. Metal Preparation: As sheet metal installation progresses, neutralize excess flux with 5 to 10 percent washing soda solution, and thoroughly rinse.
- B. Repairs: Repair or replace damaged and deformed sheet metal.
- C. Cleaning: Wash down exposed surfaces and remove stains, scrap and debris such that sheet metal is ready to receive field painting and related Work.
1. Wash down exposed surfaces and remove soiling, dust, contamination from steel wool and drilling residue, and other scrap and debris.

2. Scrub surfaces with detergent solution as necessary to remove grease and oil films, handling marks, and stains.

3.07 FIELD PAINTING

- A. Field Painting: Field-paint exposed sheet metal for corrosion resistance and decorative purposes. Field finish painting is specified in Section 09 9600 - Urethane Coatings for Steel and in Section 09 9000 - Painting and Coating.

3.08 PROTECTION

- A. Protection: Protect sheet metal flashings and trim during remainder of construction to ensure that Work will be without damage or deterioration other than natural weathering at time of Substantial Completion review.

END OF SECTION

SECTION 07 90 05
JOINT SEALERS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Exterior joints sealers in vertical surfaces and non-traffic horizontal surfaces.
- B. Fire-rated joint sealers in vertical surfaces of exterior walls.
- C. Fire-rated joint sealers at floor to wall condition.

1.2 RELATED SECTIONS

- A. Section 09 91 23 - Exterior Painting: Use of painter's caulk for preparation of surfaces to receive field finish paint.

1.3 SYSTEM DESCRIPTION

- A. Joint Sealer Work for Weathertightness: Work includes all interior and exterior caulking and sealing required to make building weathertight and includes caulking and sealing wherever expansion and contraction occurs and between materials and products which could lead to infiltration of moisture, water, light or air blown particles into building.
- B. Joint Sealer Work for Acoustical Control: Work includes interior caulking and sealing required to stop airborne sound transmission through building assemblies.
- C. Joint Sealer Work for Moisture Control: Work includes interior caulking and sealing to fill openings and seams to prevent moisture penetration.
- D. Joint Sealer Work for Appearance: Work includes interior caulking and sealing to neatly trim and fill openings prior to painting.
- E. Definition: The terms sealant and caulking shall be considered synonymous.

1.4 REFERENCES

- A. Sealant, Waterproofing and Restoration Institute (SWRI): Sealants - The Professional's Guide.
- B. American Society for Testing and Materials (ASTM): Standards referenced apply to the work only to the extent specified by the reference.

1.5 SUBMITTALS

- A. Product Data: Each joint sealant product required. Indicate sealant chemical characteristics, performance criteria, limitations, color availability.
- B. Installation Instructions: Instructions for joint preparation and joint sealer application. Note all deviations from SWRI recommendations.
- C. Samples:
 - 1. For initial selection purposes: Manufacturer's standard bead samples, consisting of strips of actual products showing full range of colors available, for each product exposed to view.
 - 2. For verification purposes: Each type and color of joint sealant required. Install joint sealant samples in 1/2-inch-wide joints formed between two 6-inch-long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Certification:

1. Certification by joint sealant manufacturer that sealants plus the primers and cleaners required for sealant installation comply with local regulations controlling use of volatile organic compounds.
 2. Certification from manufacturers of joint sealants attesting that their products comply with specification requirements and are suitable for the use indicated.
- E. Qualification Data: Installer's qualifications, complying with requirements specified in Article titled QUALITY ASSURANCE. Include list of completed projects with project names addresses, names of architects and owners, plus other information specified.
- F. Test Data: Compatibility and adhesion test reports from elastomeric sealant manufacturer indicating that materials forming joint substrates and joint sealant backings have been tested for compatibility and adhesion with joint sealants. Include sealant manufacturer's interpretation of test results relative to sealant performance and recommendations for primers and substrate preparation needed to obtain adhesion.
- G. Product test reports for each type of joint sealants indicated, evidencing compliance with requirements specified.
- H. Pre-Construction field test reports indicating which products and joint preparation methods demonstrate acceptable adhesion to joint substrates.

1.6 QUALITY ASSURANCE

- A. Applicator's Qualifications: Company specializing in joint sealer work with minimum three years documented experience and approved by sealant manufacturer. Installer shall have successfully completed, within previous 3 years, at least 3 joint sealer installations of similar type and scope as that required for Project.
- B. Single Source Responsibility for Joint Sealer Materials: Obtain joint sealer materials from a single manufacturer for each different product required.
- C. Industry Standard: Conform to SWRI - Sealants: The Professionals Guide, requirements and recommendations for installation conditions, substrate materials and sealant product selection.
- D. Product Testing: Provide comprehensive test data for each type of joint sealer based on tests conducted by a qualified independent testing laboratory on current product formulations within a 24-month period preceding date of Contractor's submittal of test results to Architect.
1. Test elastomeric sealants for compliance with requirements specified by reference to ASTM C920. Include test results for hardness, stain resistance, adhesion and cohesion under cyclic movement (in conformance to ASTM C719), low-temperature flexibility, modulus of elasticity at 100 percent strain, effects of heat aging, and effects of accelerated weathering.
 2. Include test results performed on joint sealers after they have cured 1 year.
- E. Pre-Construction Field Testing: Prior to installation of joint sealants, field-test their adhesion to joint substrates as follows:
1. Locate test joints where directed by Architect.
 2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of non-elastomeric sealant and joint substrate indicated.
 3. Arrange for tests to take place with both Architect and joint sealer manufacturer's technical representative present.
 4. Test Method: Test joint sealers by hand pull method described below:
 - a. Install joint sealants in 5-foot joint lengths using same materials and methods for joint preparation and joint sealant installation required for completed Work. Allow sealants to cure fully before testing.
 - b. Make knife cuts as follows: A horizontal cut from one side of joint to the other followed by 2 vertical cuts approximately 2 inches long at side of

- joint and meeting horizontal cut at top of 2 inch cuts. Place a mark 1 inch from top of 2 inch piece.
- c. Use fingers to grasp 2 inch piece of sealant just above 1 inch mark; pull firmly down at a 90 degree angle or more while holding a ruler along side of sealant. Pull sealant out of joint to the distance recommended by sealant manufacturer for testing adhesive capability, but not less than that equaling specified maximum movement capability in extension; hold this position for 10 seconds.
 5. Report whether or not sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate.
 6. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants which fail to adhere to joint substrates during testing.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials in original, tightly sealed containers or unopened packages with manufacturer's name, labels, product identification, lot numbers (where appropriate), color, expiration period for use, pot life, curing time, and mixing instructions for multi-component materials.
- B. Storage and Handling: Store and handle materials in compliance with manufacturers' instructions and recommendations, to prevent their deterioration or damage due to moisture, high and low temperatures, contaminants, or other causes. Store materials out of weather in original containers or unopened packages as recommended by manufacturer.

1.8 WARRANTY

- A. Extended Warranty: Contractor and sealant applicator shall jointly furnish a written warranty to the District stating that joints sealed as specified in this Section which fail to achieve and maintain air tight and watertight seal, exhibit loss of adhesion or cohesion, or do not cure within a period of five years from the date established in "Notice of Completion", except for failure due to structural defects, will be repaired or reconstructed at no cost to District.

1.9 PROJECT CONDITIONS

- A. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer; below 40 degrees F or above 100 degrees F.
 2. When joint substrates are wet.
- B. Joint Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.
- C. Joint Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.
- D. Project Conditions:
 1. Do not install solvent curing sealants in enclosed building spaces.
 2. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

1.10 SEQUENCING AND SCHEDULING

- A. Sequencing and Scheduling: Sequence installation of joint sealers to occur not less than 21 nor more than 30 days after completion of waterproofing, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealers, joint fillers and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
- B. Colors: Standard or custom colors as selected by Architect to match or suit surrounding finish materials.

2.2 ELASTOMERIC JOINT SEALANTS

- A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealant of base polymer indicated which complies with ASTM C920 requirements, including those referenced for Type, Grade, Class, and Uses.
- B. One-Part Non-Acid-Curing Silicone Sealant: Type S, Grade NS, Class 25; suitable for Uses T, NT, M, G, A, and, as applicable to joint substrates indicated, O; and complying with the following requirements for Uses and additional joint movement capability:
 - 1. Additional capability, when tested for adhesion and cohesion under maximum cyclic movement in conformance to ASTM C719, to withstand the following percentage changes in joint width as measured at time of application and remain in compliance with other requirements of ASTM C920 for Uses with 50 percent movement in both extension and compression for a total of 100 percent movement.
 - 2. Acceptable Products and Manufacturers: As listed below. Equivalent products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 60 00 - Product Requirements.
 - a. Chem-Caulk N-Cure 2000, by Bostik Construction Products Div.
 - b. Dow Corning 790, by Dow Corning Corp.
 - c. Silglaze N SCS 2501, by General Electric Co.
 - d. Silpruf SCS 2000, by General Electric Co.
 - e. 864, by Pecora Corp.
 - f. Rhodorsil 5C, by Rhone-Poulenc Inc.
 - g. Spectrum 1, by Tremco, Inc.
 - h. Spectrum 2, by Tremco, Inc.
- C. One-Part Acid-Curing Silicone Sealant: Type S, Grade NS, Class 25; suitable for Uses NT, G, A, and others as recommended by sealant manufacturer.
 - 1. Acceptable Products and Manufacturers: As listed below. Equivalent products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 60 00 - Product Requirements.
 - a. Chem-Caulk 1200, by Bostik Construction Products Div.
 - b. Dow Corning 999A, by Dow Corning Corp.
 - c. SCS 1000, by General Electric Co.
 - d. Construction 1200, by General Electric Co.
 - e. 863, by Pecora Corp.
 - f. Rhodorsil 3B, by Rhone-Poulenc Inc.

- g. Rhodorsil 90, by Rhone-Poulenc Inc.
 - h. OmniPlus, by Sonneborn Building Products Div., Rexnord Chemical Products Inc.
 - i. Proglaze, by Tremco, Inc.
- D. One-Part Mildew-Resistant Silicone Sealant: Type S, Grade NS, Class 25; suitable for Uses NT, G, A, and, as applicable to non-porous joint substrates indicated, O; formulated with fungicide; intended for sealing interior joints with non-porous substrates and subject to in-service exposure to conditions of high humidity and temperature extremes.
- 1. Acceptable Products and Manufacturers: As listed below. Products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 60 00 - Product Requirements.
 - a. Dow Corning 786, by Dow Corning Corp.
 - b. SCS 1702 Sanitary, by General Electric Co.
 - c. 863 #345 White, by Pecora Corp.
 - d. Rhodorsil 6B White, by Rhone-Poulenc Inc.
 - e. Proglaze White, by Tremco Inc.
 - f. OmniPlus, by Sonneborn Building Products Div., Rexnord Chemical Products Inc.
- E. One-Part Non-Acid-Curing Silicone Sealant for Use T: Type S, Grade NS, Class 25; suitable for Uses T, M, and, as applicable to joint substrates indicated, O; and complying with the following requirement for additional joint movement capability:
- 1. Additional capability, when tested for adhesion and cohesion under maximum cyclic movement in conformance to ASTM C719, to withstand the following percentage changes in joint width as measured at time of application and remain in compliance with other requirements of ASTM C920 for Uses with 100 percent movement in extension and 50 percent movement in compression for a total of 150 percent movement.
 - 2. Specified Product and Manufacturer: Dow Corning 888, by Dow Corning Corp.
 - 3. Acceptable Products and Manufacturers: None identified. Products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 60 00 - Product Requirements.

2.3 LATEX JOINT SEALANTS

- A. Acrylic-Emulsion Sealant: Manufacturer's standard, one part, non-sag, mildew-resistant, acrylic-emulsion sealant complying with ASTM C834, formulated to be paintable and recommended for exposed applications on interior and on protected exterior locations involving joint movement of not more than plus or minus 5 percent.
- 1. Acceptable Products and Manufacturers: As listed below. Products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 60 00 - Product Requirements.
 - a. Chem-Calk 600, by Bostik Construction Products Div.
 - b. AC-20, by Pecora Corp.
 - c. Sonolac, by Sonneborn Building Products Div.; Rexnord Chemical Products, Inc.
 - d. Tremco Acrylic Latex 834, by Tremco Inc.

2.4 FIRESTOPPING JOINT SEALANT

- A. Specified Manufacturer: Specified Technologies, Inc. (STI), Somerville, NJ (800/992-1180; local representative, McGee Co., Commerce, CA, 213/261-0181).

- B. Acceptable Manufacturers: None identified. Equivalent products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 60 00 - Product Requirements.
- C. Firestopping Silicone Joint Sealant: STI SpecSeal PEN300 Silicone Joint Sealant, one-part silicone sealant for use as a component in UL-listed fire-resistive joint system and complying with ASTM C920, Type S, NS, Class 25.
 - 1. At exterior tilt-up concrete walls indicated, joints shall be rated for 1 to 4-hour fire resistance and for joint widths from 3/4-inch to 2-inches, as indicated on the Drawings.
 - 2. Joint sealant shall also function as weatherseal, preventing intrusion by moisture, including wind-driven rain.
 - 3. Joint sealant shall be resistant to heat, cold, ultraviolet radiation, ozone and sunlight.
- D. Firestopping Joint Sealant at Floor to Wall Condition: Tremco, Inc., Tremstop Acrylic, UL BW-S-0006, or equal.

2.5 MISCELLANEOUS MATERIALS

- A. Joint Sealant Backing, General: Provide sealant backings of material and type which are non-staining; are compatible with joint substrates, sealants, primers and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Primer: Provide type recommended by joint sealer manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from pre-construction joint sealer-substrate tests and field tests.
- C. Cleaners for Non-porous Surfaces: Provide non-staining, chemical cleaners of type which are acceptable to manufacturers of sealants and sealant backing materials, which are not harmful to substrates and adjacent non-porous materials, and which do not leave oily residues or otherwise have a detrimental effect on sealant adhesion or in-service performance.
- D. Masking Tape: Provide non-staining, non-absorbent type compatible with joint sealants and to surfaces adjacent to joints.
- E. Plastic Foam Joint Fillers: Preformed, compressible, resilient, non-waxing, non-extruding strips of flexible, non-gassing plastic foam of material indicated below; non-absorbent to water and gas; and of size, shape and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
 - 1. Specified Manufacturer and Product: Applied Technologies, Inc., Sof Rod, proprietary, reticulated, closed-cell polymeric foam, non-outgassing, with a density of 2.5 pcf and tensile strength of 35 psi per ASTM D1623, and with water absorption less than 0.02 gms/cc per ASTM C1083.
 - 2. Acceptable Manufacturer and Product: None identified. Equivalent products of other manufacturers will be considered in accordance with the "or equal" provision specified in Section 01 60 00 - Product Requirements.
- F. Elastomeric Tubing Joint Fillers: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D1056, non-absorbent to water and gas, capable of remaining resilient at temperatures down to -26 degrees F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and otherwise contribute to optimum sealant performance.
- G. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

- H. Mineral Wool: For fire-rated joint construction, Partek Paroc Industrial Board 1240 or equal. Product shall be as required for UL-listed fire-rated joint construction.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces and joint openings are ready to receive work and field measurements are as shown on Drawings and recommended by the manufacturer.
- B. Examine joints to be sealed for construction defects which would adversely affect execution of Work. Correct all defects and detrimental conditions before proceeding with joint sealers.
- C. Ensure that concrete has cured 28 days minimum.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealers to comply with recommendations of joint sealer manufacturers and the following requirements:
 - 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealer, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; old joint sealers; oil; grease; waterproofing; water repellents; water; surface dirt; and frost.
 - 2. Clean concrete, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.
 - 3. Remove laitance and form release agents from concrete.
 - 4. Clean metal, glass, porcelain enamel, surfaces of ceramic tile; and other non-porous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealers.
- B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealer manufacturer based on pre-construction joint sealer-substrate tests or prior experience. Apply primer to comply with joint sealer manufacturer's recommendations. Confine primers to areas of joint sealer bond, do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces which otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 JOINT DIMENSIONS

- A. Butyl Base Type Sealant: Minimum joint width 1/4-inch and depth of 3 times width of joint, with maximum depth of 3/4-inch.
- B. Silicone Rubber Sealant: Minimum joint width 1/4-inch and depth of approximately one-half the width, but in no case less than 1/4-inch. Other wide-to-depth ratios as follows:

JOINT WIDTH:

JOINT DEPTH:

For Non-Porous Surfaces:

1/4" (minimum)
1/4" to 1/2"
Over 1/2"

Minimum:

1/4"
1/2 of width
Not Permitted

Maximum:

1/4"
Equal to width

For Porous Surfaces:

1/4" (minimum)
1/4" to 1/2"
1/2" to 1"
Over 1"

1/4"
1/4"
1/2"
Not Permitted

1/4"
Equal to width
Equal to width

- C. Acrylic and Polyurethane: Minimum joint width 1/4-inch and depth equal to width, but in no case deeper than 1/2-inch. Other width-to-depth ratios as follows:

JOINT WIDTH:

JOINT DEPTH:

For Non-Porous Surfaces:

1/4" (minimum)
1/4" to 1/2"
Over 1/2" to 1" maximum

Minimum:

1/4"
Equal to width
1/2"

Maximum:

1/4"
Equal to width
1/2"

For Porous Surfaces:

1/4" (minimum)
1/4" to 1/2"
1/2" to 1"
Over 1"

1/4"
1/4"
1/2"
Not Permitted

1/4"
Equal to width
Equal to width

3.4 COMPRESSION SEALS INSTALLATION

- A. Environmental Conditions for Compression Seals Installation:
 - 1. Ambient air temperature: 45 degrees F to 85 degrees F.
 - 2. Rain: Install compression seals under dry conditions only.
 - 3. Substrate: Clean, free from dust, dirt and debris.
- B. Joint Preparation for Compression Seals: Prepare joint in accordance with manufacturer's instructions and recommendations. Thoroughly clean substrate. Apply adhesive to joint edges. Apply lubricant to seal edges.

3.5 INSTALLATION OF JOINT SEALANTS

- A. Installation of Joint Sealants, General: Comply with joint sealant manufacturer's printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.
- B. Elastomeric Sealant Installation Standard: Comply with recommendations of ASTM C962 for use of joint sealants as applicable to materials, applications and conditions indicated.
- C. Solvent-Release-Curing Sealant Installation Standard: Comply with requirements of ASTM C804 for use of solvent-release-curing sealants.
- D. Latex Sealant Installation Standard: Comply with requirements of ASTM C790 for use of latex sealants.
- E. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:

1. Install joint fillers of type specified, to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths which allow optimum sealant movement capability.
 - a. Do not leave gaps between ends of joint fillers.
 - b. Do not stretch, twist, puncture, or tear joint fillers.
 - c. Remove absorbent joint fillers which have become wet prior to sealant application and replace with dry material.
 2. Install bond breaker tape between sealants and joint fillers, compression seals, or back of joints where adhesion of sealant to surfaces at back of joints would result in sealant failure.
 3. Install compressible seals serving as sealant backings to comply with requirements indicated above for joint fillers.
- F. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths which allow optimum sealant movement capability.
- G. Tooling of Non-Sag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents which discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
1. Provide concave joint configuration in conformance to Figure 6A in ASTM C962, unless otherwise indicated.
 2. Provide flush joint configuration in conformance to Figure 6B in ASTM C962, where indicated. Use masking tape to protect adjacent surfaces of recessed tooled joints.
 3. Provide Recessed joint configuration in conformance to Figure 6C in ASTM C962, of recess depth and at locations indicated.

3.6 FIRE-RATED JOINT INSTALLATION

- A. Fire-Rated Joint Construction, General: Comply with instructions of manufacturer and listing authority.
- B. Fire-Rated Joint Construction: Construct joint with foam backer rod as specified for conventional joints. Comply with UL System Numbers J900Z022 and U900Z021, as applicable.
1. Apply firestopping silicone joint sealant installed on both sides of joint, to depth as required for fire-rating (approximately 1-1/2 inches).
 2. At exterior side, depress face of joint sealant to allow for installation of compression seal to match appearance of other joints.

3.7 CLEANING AND PROTECTION

- A. Progress Cleaning: Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealers and of products in which joints occur.
1. Clean joints by mechanical means or with solvent as recommended by sealant manufacturer and compatible with finish material, to eliminate soiling and overlap on adjacent surfaces.
 2. Clean adjacent soiled surfaces.
- B. Repairs: Repair or replace defaced or disfigured finishes caused by joint sealer Work.

3.8 PROTECTION

- A. Protection: Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes.
1. Joint sealers shall be without deterioration or damage at Substantial Completion review.
 2. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

3.9 SCHEDULE OF INTERIOR JOINTS IN VERTICAL SURFACES

<u>Location</u>	<u>Sealant</u>
Joints in cast-in-place concrete and between metal and concrete.	One-Part Non-Acid Curing Silicone Sealant.
Perimeter joints between materials listed above and frames of doors, windows, hollow metal entrances and storefront.	One-Part Non-Acid Curing Silicone Sealant.

END OF SECTION

**SECTION 09 65 80
RESILIENT SHEET FLOORING**

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Resilient sheet flooring.
- B. Rubber base.

1.2 SUBMITTALS

- A. Product Data: If other than specified products of specified manufacturer, submit manufacturer's catalog data and installation instructions.
- B. Samples for Initial Selection Purposes: Submit manufacturer's standard color charts in form of actual sections of resilient flooring, including accessories, showing full range of colors and patterns available, for each type of resilient flooring required.
- C. Samples for Verification Purposes: Submit the following samples of each type, color and pattern of resilient flooring required, showing full-range of color and pattern variations.
 - 1. 12-inch square samples of each type resilient flooring.
 - 2. 30-inch, minimum, long samples of resilient flooring accessories.
 - 3. Welding beads.
 - 4. Other materials as requested.
- D. Certification for Fire Test Performance: Submit certification from an independent testing laboratory acceptable to authorities having jurisdiction that resilient flooring complies with fire test performance requirements.
- E. Maintenance Instructions: Submit 2 copies of manufacturer's recommended maintenance practices for each type of resilient flooring and accessory required.
- F. Maintenance Stock: After completion of Work, deliver to District the following:
 - 1. Resilient sheet flooring equal to 5 percent of floor area of product in each pattern and color, but not more than 24 square feet of each.

1.3 QUALITY ASSURANCE

- A. Fire Test Performance: Provide resilient flooring which complies with the following fire test performance criteria as determined by an independent testing laboratory acceptable to governing authorities having jurisdiction.
 - 1. Critical Radiant Flux (CRF): ASTM E648, not less than 0.45 watts per sq. cm.
 - 2. Flame Spread: ASTM E84, not more than 75.
 - 3. Smoke Developed: ASTM E84, not more than 450.
 - 4. Smoke Density: ASTM E662, not more than 450.
 - 5. Coefficient of Friction: ASTM D2047 not less than 0.6
- B. Installer's Qualifications: Installer shall be certified in writing by resilient flooring manufacturer as qualified for installation of sheet vinyl employing heat-welded seams.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver and store materials in manufacturer's cartons or wrappings, keeping products clean, dry and protected from physical damage.
- B. Storage: Do not stack products higher than recommended by manufacturer.
- C. Protection: Protect all resilient flooring materials, including adhesives, from extended direct exposure to sunlight.

1.5 PROJECT CONDITIONS

- A. Temperature Requirements: Comply with resilient flooring manufacturer's requirements and recommendations.
 - 1. Maintain minimum temperature of 65 degrees F in spaces to receive resilient flooring for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation.
 - 2. Store resilient flooring materials in spaces where they will be installed for at least 48 hours before beginning installation.
 - 3. Provide adequate ventilation to carry off volatile fumes.
- B. Scheduling and Sequencing: Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Do not install resilient flooring over concrete slabs until concrete has sufficiently cured and is sufficiently dry to achieve bond with adhesive as determined by resilient flooring manufacturer's recommended bond and moisture tests and as described under Part 3, Execution.

1.7 WARRANTY

- A. Provide manufacturer's standard 5-year warranty against defects and wear-through. Submit in accordance with Division 01.

PART 2 - PRODUCTS

2.1 RESILIENT SHEET FLOORING

- A. Specified Manufacturer: Spectra Contract Flooring, Cypress, CA (562/799-7529).
- B. Acceptable Manufacturer: Equivalent products of the manufacturers listed below meeting or exceeding physical and performance characteristics of specified products will be considered in accordance with the "or equal" provision specified in Section 01 60 00 - Product Requirements.
 - 1. Forbo.
 - 2. LG Chem.
 - 3. Tarkett Inc.
 - 4. Armstrong Flooring
- C. Resilient Sheet Vinyl Flooring: Spectrafloors multi-layered inlaid sheet vinyl. Composition PVC top layer, fiberglass inner layer, PVC layer and polyester mesh backing. Minimum coefficient of friction at least 0.6 per ASTM D2047. Material shall be chemical and stain resistant.
- D. Size: Manufacturer's standard, 6 foot minimum width rolls, 0.80 inches thick.
- E. Colors and Patterns, General: Medium sand look grain. Color and pattern of flooring shall be uniformly distributed throughout the thickness of the base. Variations in shades and off-pattern matches between containers will not be acceptable. Provide one color throughout any one room, except where otherwise indicated.
- F. Colors and Patterns, Specific: As selected by Architect from manufacturer's standard selection, unless otherwise indicated on Drawings or directed by District.

2.2 SHEET VINYL FLOORING INSTALLATION MATERIALS

- A. Leveling and Patching Compounds: Latex type as recommended by flooring manufacturer.
- B. Adhesive for Resilient Sheet Flooring: Fed Spec MMM-A-110 and Fed Spec MMM-A-115, Class 1 or latex waterproof adhesive as recommended by the flooring manufacturer.

- C. Seam Welding Thread: Vinyl thread or rod as produced by manufacturer of resilient sheet flooring and intended for heat sealing of recess scribed joints. Provide color to match field color of flooring.
- D. Metal Edge Strips: Of width shown and of required thickness to protect exposed edge of resilient flooring. Provide units of maximum available length, to minimize number of joints.
 - 1. Material: Extruded aluminum with mill finish, unless otherwise shown.
 - 2. Type: Butt type metal edge strips for concealed anchorage.
- E. Polish: Commercially-available metal cross-linked acrylic product as recommended by and acceptable to resilient flooring manufacturer.
- F. Additional Accessories: Provide standard products of the flooring manufacturer, as required for a complete installation coordinated with adjacent flooring products.

2.3 RESILIENT BASE

- A. Resilient Base (RB-1 and RB-2): ASTM F1861, Type TS rubber, vulcanized thermoset; top set Style B, Cove, and as follows:
 - 1. Critical Radiant Flux (CRF): Minimum 0.45 watt per square centimeter, when tested in accordance with ASTM E 648 or NFPA 253.
 - 2. Height: 6 inch.
 - 3. Thickness: 0.125 inch thick.
 - 4. Finish: Satin.
 - 5. Length: Roll.
 - 6. Color: As selected by Architect from manufacturer's standards.
 - 7. Accessories: Premolded external corners and end stops.
 - 8. Adhesive: Acrylic Wall Base Adhesive recommended by manufacturer for the correct application.
 - 9. Manufacturers:
 - a. Burke Flooring: www.burkemercer.com.
 - b. Johnsonite, Inc: www.johnsonite.com.
 - c. Basis of Design: Roppe Corp; Product Pinnacle: www.roppe.com.
 - d. Substitutions: See Section 01 60 00 - Product Requirements.

PART 3 - EXECUTION

3.1 VERIFICATION OF CONDITIONS

- A. Verify that floor surfaces to receive flooring are clean, thoroughly dry, smooth, firm and sound, and free from oil, paint, wax, and all other materials that could prevent proper adhesive bond and smooth installation.
- B. Environmental Condition: Comply with flooring manufacturer's instructions and recommendations.
 - 1. Verify that ambient and surface temperatures and humidity conditions are in compliance.
 - 2. Concrete Vapor Emission and pH Testing: Verify that floors have cured a minimum of 28 days and are dry to extent required by floor covering manufacturer for proper installation of flooring materials. If not otherwise required by manufacturer, conduct calcium chloride and pH tests 2 weeks prior to flooring installation. Apply tests at a minimum of 3 locations for each flooring condition, and a minimum of 3 tests for the first 1000 square feet and 1-test for each additional 1000 square feet.
 - a. Calcium chloride test shall exhibit maximum moisture content of 3 lbs. per 1000 square feet in 24 hours and no carbonization or dusting.

- b. pH test shall exhibit a pH no greater than 9 when substrate wetted with potable water and pHDrion paper applied.
 - c. Consult with flooring manufacturer for certain flooring materials which may allow up to 5 lbs. maximum moisture content.
 - d. Submit copies of test results to Architect, including manufacturer's limits.
 - 3. Verify that suitable conditions can be maintained during installation and until Acceptance.
- C. Do not begin installation of resilient flooring until surfaces are suitable. Beginning of installation means acceptance of existing substrate and site conditions and assumes responsibility for correcting unsuitable conditions at no additional cost to the District.

3.2 PREPARATION

- A. Preparation of Surfaces: Prepare surfaces to meet all requirements and recommendations of both adhesive and flooring manufacturers.
 - 1. Entirely remove concrete curing compounds, other than the type that does not adversely affect adhesive, from surfaces to receive flooring and accessories.
 - 2. Grind all ridges and other uneven surfaces smooth.
 - 3. Rout out and fill cracks 1/16-inch wide and wider with a crack filler.
 - 4. As necessary, dry scrape and scour floor surface and sweep to remove loose dirt, adhered caulking, drywall topping and joint compounds, plaster droppings, paint and other soiling detrimental to flooring and accessories installation.
 - 5. Remove remaining loose particles and vacuum chalking and dusty surfaces.
 - 6. Apply latex underlayment, as recommended by flooring manufacturer, to fill remaining holes, cracks, and depressions, and to smooth, level and feather edges of substrate.
- B. Moisture Test for Concrete Floors: Perform test as previously specified and recommended by the floor covering manufacturer to verify that moisture condition is acceptable for proper installation of resilient flooring.
- C. Bond Test: Perform test as recommended by resilient flooring manufacturer. Do not proceed with installation until conditions for proper bond are achieved.
- D. Products Preparation: Acclimate flooring products and accessories to ambient conditions. Comply with manufacturer's instructions and recommendations.

3.3 RESILIENT SHEET FLOORING INSTALLATION

- A. Resilient Sheet Flooring Installation, General: Install resilient flooring in accordance with manufacturer's instructions and recommendations.
 - 1. Extend resilient flooring into toe spaces, cabinet knee spaces, door reveals, and into closets and similar openings.
- B. Layout: Lay out sheet flooring to minimize waste, but avoiding seams at changes of traffic direction. If indicated, comply with layout and patterns indicated on Drawings.
- C. Cutting: Cut sheet flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes and outlets. Cut edges, fit and scribe to walls and partitions after field flooring has been applied.
- D. Adhesive Application: Install resilient flooring in accordance with manufacturer's instructions and recommendations.
 - 1. Apply adhesive using tools and application rates in accordance with manufacturer's instructions and recommendations to suit resilient flooring product type.
 - 2. Tightly cement resilient flooring to subbase without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, or other surface imperfections.

3. Hand roll resilient flooring to ensure full adhesion.
 4. Keep each floor in a true, level plane, except where indicated as sloped.
- E. Cutting: Cut resilient flooring to fit around all permanent fixtures, built-in furniture and cabinets, pipes and outlets. Cut edges, fit and scribe to walls and partitions after field flooring has been applied.

3.4 CLEANING AND PROTECTION

- A. Installation Clean-Up: Upon completion of installation in a room or area, clean flooring and adjacent surfaces.
1. Sweep or vacuum floor thoroughly.
 2. Do not wash floor until time period recommended by resilient flooring manufacturer has elapsed to allow resilient flooring to become well-sealed in adhesive.
 3. Remove excess adhesive or other surface blemishes, using appropriate cleaner recommended by resilient flooring manufacturers.
- B. Initial Cleaning: After adhesive has set but no sooner than 5 days after installation, wash resilient tile flooring with a neutral type cleaning solution in accordance with manufacturer's instructions and recommendations. Rinse thoroughly with clear, cool water but do not flood floor.
1. After completion of installation, apply one coat of polish, if recommended by manufacturer, and buff to even luster.
 2. After final cleaning, apply second coat of polish as recommended by tile manufacturer and buff to even luster.
- C. Protection: From the time of laying until Acceptance, protect flooring from damage.
1. Lay reinforced kraft paper runners and provide barricades and signs as necessary to prevent construction traffic on completed installations.
 2. Protect resilient flooring against damage from rolling loads for initial period following installation by covering with plywood or hardboard. Use dollies to move stationary equipment or furnishings across floors.
 3. Remove and replace defects which develop such as damaged, loose or broken tile and resilient accessories.
- D. Final Cleaning: Thoroughly clean resilient flooring and accessories in accordance with final cleaning specified in Section 01 77 00 - Contract Closeout.
1. Clean resilient flooring not more than 4 days prior to date scheduled for inspections intended to establish date of substantial completion in each area of Project.
 2. Clean resilient flooring by method recommended by resilient flooring manufacturer, including stripping and application of additional floor polish and buffing to even luster.

END OF SECTION

SECTION 09 91 23

EXTERIOR PAINTING

PART 1 GENERAL

1.01 DEFINITIONS

- A. Conform to ASTM D16 for interpretation of terms used in this section.

1.02 REFERENCE STANDARDS

- A. ASTM D16 - Standard Terminology for Paint, Related Coatings, Materials, and Applications; 2014.
- B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; Current Edition, www.paintinfo.com.
- C. SCAQMD 1113 - South Coast Air Quality Management District Rule No.1113; current edition.
- D. SSPC-SP 1 - Solvent Cleaning; 2015.
- E. SSPC-SP 2 - Hand Tool Cleaning; 1982 (Ed. 2004).
- F. SSPC-SP 6 - Commercial Blast Cleaning; 2007.

1.03 SUBMITTALS

- A. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. MPI product number (e.g. MPI #47).
 - 3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- B. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.
 - 2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.
 - 3. Allow 30 days for approval process, after receipt of complete samples by Architect.
 - 4. Paint color submittals will not be considered until color submittals for major materials not to be painted, such as masonry, siding, and shingle roofing, have been approved.
- C. Certification: By manufacturer that paints and finishes comply with VOC limits specified.
- D. Manufacturer's Instructions: Indicate special surface preparation procedures.
- E. Maintenance Data: Submit data including finish schedule showing where each product/color/finish was used, product technical data sheets, material safety data sheets (MSDS), care and cleaning instructions, touch-up procedures, repair of painted and finished surfaces, and color samples of each color and finish used.
- F. Maintenance Materials: Furnish the following for District's use in maintenance of project.
 - 1. Extra Paint and Finish Materials: 1 gallon of each color; from the same product run, store where directed.
 - 2. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.
- B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years documented experience and approved by manufacturer.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.
- B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.
- C. Paint Materials: Store at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in ventilated area, and as required by manufacturer's instructions.

1.06 FIELD CONDITIONS

- A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.
- B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.
- C. Do not apply exterior paint and finishes during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.
- D. Minimum Application Temperatures for Latex Paints: 50 degrees F for exterior; unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80 ft candles measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes from the same manufacturer to the greatest extent possible.
 - 1. In the event that a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.
 - 2. Substitution of other products by the same manufacturer is preferred over substitution of products by a different manufacturer.
- B. Paints:
 - 1. Behr Process Corporation: www.behr.com.
 - a. Local representative Jan Piccola (714) 679-5730.
 - 2. Dunn-Edwards Corporation: www.dunnedwards.com,
 - a. Local representative Wanda Barragan (909) 261-1289.
 - 3. PPG Paints: www.ppgpaints.com/sle.

4. Sherwin-Williams Company: www.sherwin-williams.com.
 - a. Local representative John Dumesnil (619) 665-9341.
 5. Valspar Corporation: www.valsparpaint.com.
 6. Vista Paint; www.vistapaint.com .
 - a. Local representative Mark Brower (323) 397-9000.
- C. Transparent Finishes:
1. Behr Process Corporation: www.behr.com.
 2. Sherwin-Williams Company: www.sherwin-williams.com.
- D. Primer Sealers: Same manufacturer as top coats.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready mixed, unless required to be a field-catalyzed paint.
1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 2. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
 3. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
 4. Supply each paint material in quantity required to complete entire project's work from a single production run.
 5. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.
- B. Volatile Organic Compound (VOC) Content:
1. Regulatory Requirements: Conform to California Air Resources Board (CARB), and South Coast Air Quality Management District (SCAQMD) and other applicable local air quality regulations for products and application.
- C. Flammability: Comply with applicable code for surface burning characteristics.
- D. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.
- E. Colors: As indicated in Color Schedule.
1. Extend colors to surface edges; colors may change at any edge as directed by Architect.

2.03 PAINT SYSTEMS - EXTERIOR

- A. Paint E-OP - Exterior Surfaces to be Painted, Unless Otherwise Indicated:
1. One or two coats to cover and one coat primer.
 2. Top Coat(s): Exterior Latex.

- a. Products:
 - 1) Behr Marquee Exterior Semi-Gloss Enamel [No. 5450]. (MPI #11)
 - 2) Behr Premium Plus Exterior Semi-Gloss Enamel [No. 5050].
 - 3) Dunn-Edwards Corp.; 704V Acriflat
 - 4) PPG Paints
 - 5) Sherwin Williams Co; Solo Acrylic Semi-Gloss, A76 Series (MPI #11)
 - 6) Valspar Emblem Exterior Latex, No. 56530 Series, Semi-Gloss. (MPI #11)
 - 7) Vista Paint;
 - 8) Substitutions: Section 01 60 00 - Product Requirements.
- 3. Top Coat Sheen:
 - a. Semi-Gloss: MPI gloss level 5; use this sheen at all locations.
- 4. Primer: As recommended by top coat manufacturer for specific substrate.
- E. Paint GE-OP-2L - Exterior Plaster, Opaque, Latex, 2 Coat:
 - 1. One coat of latex primer sealer.
 - 2. Flat: One coat of latex; Behr Paint, 4000 Series Premium Plus Exterior Flat.

2.04 PRIMERS

- A. Primers: Provide the following unless other primer is required or recommended by manufacturer of top coats.
 - 1. Alkali Resistant Water Based Primer; MPI #3.
 - a. Products:
 - 1) Behr Concrete and Masonry Bonding Primer [No. 880].
 - 2) Behr Premium Plus Interior/Exterior Multi-Surface Primer and Sealer [No. 436]. (MPI #3)
 - 3) PPG Paints Seal Grip Acrylic Primer, 17-921 Series. (MPI #3)
 - 4) Valspar Acrylic Alkali-Resistant Masonry Primer, No. 80165.
 - 5) Substitutions: Section 01 60 00 - Product Requirements.

2.05 ACCESSORY MATERIALS

- A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.
- B. Patching Material: Latex filler.
- C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin application of paints and finishes until substrates have been properly prepared.
- B. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- C. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially effect proper application.
- D. Test shop-applied primer for compatibility with subsequent cover materials.
- E. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Exterior Plaster and Stucco: 12 percent.

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Remove or repair existing paints or finishes that exhibit surface defects.
- D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces for finishing.
- E. Seal surfaces that might cause bleed through or staining of topcoat.
- F. Remove mildew from impervious surfaces by scrubbing with solution of tetra-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- G. Exterior Plaster: Fill hairline cracks, small holes, and imperfections with exterior patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions.
- B. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.
- C. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.
- D. Apply each coat to uniform appearance.
- E. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

3.05 CLEANING

- A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.06 PROTECTION

- A. Protect finishes until completion of project.
- B. Touch-up damaged finishes after Substantial Completion.

3.07 SCHEDULE - PAINT SYSTEMS

- A. Exterior Plaster: Finish surfaces exposed to view.
 - 1. Exterior Soffits: GE-OP-2L, flat.
 - 2. Exterior Walls (Exterior Plaster and Stucco): GE-OP-3L.

END OF SECTION

SECTION 10 14 00
SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Exterior and interior room identification, directional and safety signs.

1.02 SUBMITTALS

- A. Product Data: Manufacturer's descriptive data describing materials, graphic and text application methods, letter styles, and finishes, for each type of sign. Include manufacturer's maintenance and cleaning instructions.
 - 1. Paint Materials: Submit technical specifications for approval of all proposed paint and finishing materials to meet or exceed the quality of the following:
 - a. As a primer on galvanized or bare metal surfaces use an etching primer, as recommended by the paint manufacturer.
 - b. As an undercoat use a primer sealer, as recommended by the paint manufacturer.
 - c. After proper sanding and cleaning, apply a minimum of 2 coats of premium quality two-step linear polyurethane, which meets all California VOC environmental requirements.
- B. Shop Drawings: Drawings showing typical elevations, profiles and dimensions, types and thicknesses of materials, details of construction, and details and methods of mounting or anchoring for each type of sign. A schedule showing the location of each sign type shall be included.
 - 1. Copy Patterns: All sign copy and graphics indicated are for reference only. Produce film positives made by photo type position or complete generated methods. Large copy shall be enlarged in stages using optical, photographic or computer graphics equipment as required to achieve precise reproduction of all elements.
 - 2. Provide a schedule that clearly states the exact copy to be provided on each sign. Schedule shall note each line of text and how the text shall be placed on the sign, including the required Braille.
- C. Samples: One sample of each type of sign. Each sample shall consist of a complete sign panel with letters and symbols. Samples may be installed in the work, provided each sample is identified and location recorded. Two samples of manufacturer's standard color chips for each material requiring color selection.
 - 1. Paint and Silkscreen Ink Color Samples: On 8" by 8" actual material that paint or ink is being applied to, provide samples of each color, vinyl, printing process to accurately depict the material and process to the client for approval.
 - 2. Prototypes: Prototypes shall be approved by the Architect before fabrication of any parts, panels or posts, etc. Submit prototypes of any details that may affect design intent and exterior appearance, such as panel edge treatment.

1.03 PRE-INSTALLATION CONFERENCE

- A. Notify Architect when signs are ready for installation immediately prior to substantial completion. Arrange for conference at the site. Do not proceed with installation until District's and Architect's approval of specific locations and methods of attachment has been obtained.

1.04 QUALITY CONTROL

- A. Provide signs from one manufacturer, unless otherwise approved.

1.05 REGULATORY REQUIREMENTS

- A. Requirements for Persons with Disabilities: Provide identifying devices meeting the requirements for the physically disabled of the following codes:
 - 1. California Building Code (CBC) Title 24, Part 2; Chapter 11B, Accessibility.

2. CABO/ANSI A117.1 (American National Standard A117.1 published by the Council of American Building Officials) for provisions for persons with disabilities. Non-DSA Projects
 3. Code of Federal Regulations 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities. Non-DSA Projects
- B. Electrical components of illuminated signs and directories shall be labeled and listed by Underwriters' Laboratories or other testing agency acceptable to the local Building Official.
- C. Signage and graphics shall conform to relevant CBC Sections.
1. Tactile Character Type: Characters on signs shall be raised 1/32-inch (0.8 mm) minimum and shall be sans serif uppercase characters accompanied by contracted Grade 2 Braille (see Note 4c below). CBC 11B-703.2
 2. Character Size: Raised characters shall be a minimum of 5/8-inch (15.9 mm) and a maximum of 2 inches (51 mm) high. CBC 11B-703.2.5
 3. Finish and Contrast: Contrast between character, symbols and their background must be 70% minimum and have a non-glare finish. CBC 11B-703.7.1
 4. Proportions: Characters on signs shall be selected from fonts where the width of the uppercase letter "O" is 60 percent minimum and 100 percent maximum of the height of the uppercase letter "I" per CBC 11B-703.2.4 and 11B-703.5.4.
 - a. All letters measured must be uppercase.
 - b. After choosing a typestyle to test, begin by printing the letters I, X and O at 1-inch high. Place the template's 1:1 square over the X or O, whichever is narrower. If the character is not wider than 1-inch, nor narrower than the 3:5 rectangle, the proportions are correct. Use the 1:5 rectangle to determine if the stroke of the I is too broad, and the 1:10 rectangle to see if it is too narrow. If all the tests are passed, the typestyle is compliant with proportion requirement.
 - c. Braille: California Contracted Grade 2 Braille shall be used wherever Braille is required in other portions of the code. Dots shall be 1/10-inch (2.54 mm) on centers in each cell with 0.300-inch (7.6 mm) space between cells, measured from the second column of dots in the first cell to the first column of dots in the second cell. Dots shall be raised a minimum of 0.025-inch (0.6 mm) above the background. CBC 11B-703.3
 - 1) Provide rounded or domed California Braille dots, each distinct and separate. Dots with straight sides and flat tops are not readable for many Braille users.
 5. Mounting location shall be determined so that a person may approach within 3 inches (76mm) of signage without encountering protruding objects or standing within the swing of the door. CBC 11B-703.4.2.

1.06 DELIVERY AND STORAGE

- A. Materials shall be wrapped for shipment and storage, delivered to the jobsite in manufacturer's original packaging, and stored in a clean, dry area.

1.07 GUARANTEE

- A. All work specified herein shall be guaranteed for 2 years from date of "Notice of Completion" against cracking, crazing, peeling, blistering and other defects in materials and workmanship.
1. Marquee Identification Sign: Shall have a Lifetime Warranty against vandalism, or defects in workmanship or material.
- B. All vinyl shall be guaranteed for 5 years outdoor durability and 7 years indoor durability.
- C. Furnish a 2 year warranty, warranting that the linear polyurethane finishes will not develop excessive fading or excessive non-uniformity of color or shade, and will not crack, peel, pit, corrode or otherwise fail as a result of defects in material or workmanship within the following defined limits. Upon notification of such defects, within the warranty period, make necessary repairs or replacement at the convenience of the District.
1. Excessive Fading: A change in appearance which is perceptible and objectionable as determined by the Architect when visually compared with the original color range standards.

2. Excessive Non-Uniformity: Non uniform fading to the extent that adjacent panels have a color difference greater than the original range of color.
3. Will Not Pit or Otherwise Corrode: No pitting or other type of corrosion, discernable from a distance of 10 feet, resulting from the natural elements in the atmosphere at the project site.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Aluminum Plate: For exterior surfaces of sign, flat panel (not rolled stock), alloy 3003, H14 mill finish or horizontal brush finish.
- B. Acrylic Sheet: Plexiglass with clear or white non-glare finish unless otherwise indicated. Acceptable manufacturer, or equal:
 1. Rohm & Haas.
- C. Hardware: Provide all incidental hardware necessary for the proper functioning of the signs.
- D. Fasteners: Exposed fasteners will be permitted only where specifically indicated, and shall be tamper proof stainless steel, countersunk, and may be painted or finished to match adjacent surfaces.
- E. Adhesives: Type recommended by the manufacturer of the material specified to be laminated or adhered. No adhesives that will fade, discolor or delaminate as a result of proximity to sunlight or heat therefrom shall be used. Adhesives shall not change the color or otherwise deteriorate the materials to which they are to be applied. The adhesives shall be of non-staining, non-yellowing quality.
- F. Vinyl: 3M premium grade vinyl unless otherwise specified.
- G. Photopolymer: Provide water-etched photopolymer as manufactured by Jet USA, or equal. Jet LSL-94-HFB; mount to acrylic substrate with full sheet adhesive. Apply one coat of sanding primer, 1 coat finish paint (PPG-DBU); 1 coat of screen printing ink (on raised copy only) Tibbets Westerfield 01 10 00 Multi-Plastic, Inc.
- H. Individual Cut-Out Letters: Provide individual cut-out letters from aluminum in thickness and colors indicated on the Drawings. Computer laser cut or water-jet cut as provided by Architectural Fabricators, Sacramento, CA or equal approved in accordance with Section 01 60 00 - Product Requirements. The edges of all letters shall be fine sanded without imperfections to match the face surface texture.

2.02 TEXT AND GRAPHICS APPLICATION METHODS

- A. Silkscreened Graphics: Execute silkscreened images with photo screens prepared from original art. No handcut screens will be accepted. Original art shall be defined as artwork that is a first generation reproduction of the specified art. All edges and corners shall be clean eased min 1/8" radius at corners of restrooms signs per CBC 11B-703.7.2.6.4. Rounded corners, cut or ragged edges, edge build-up, bleeding, or surface pinholes will not be accepted.
- B. Photoetched Graphics: Photographically generate text, graphics, and braille and chemically etch the metal to produce 1/32-inch raised text, graphics, and braille.

2.03 SIGN FABRICATION

- A. Aluminum Magnesium Panel - Exterior: 1/4-inch total thickness, surface etched to expose 1/32-inch copy and braille. Laminate face panel to acrylic backer panel. Fill seams of laminated panels, then fine sand and ease square edges all around. Paint all around. Paint edges to match adjoining face color as indicated. Tip raised copy color as indicated.
- B. Photo Polymer on Acrylic Backer Panel - Interior: 1/4-inch total thickness, first surface etched to expose 1/32-inch copy and braille. Laminate face panel to acrylic backer panel. Fill seams of laminated panels, then fine sand and ease square edges all around. Paint all around. Paint edges to match adjoining face color as indicated. Tip raised copy color as indicated.
- C. Acrylic Panel - Exterior and Interior: 1/4-inch total thickness acrylic. Fine sand and ease square edges all around. Paint surface background color, screen print symbols and copy as indicated. Fine sand and ease square edges all around. Paint all around. Paint edges to match adjoining face color as indicated.

- D. Type Face: As indicated on the Drawings, or as selected by Architect. Comply with Article 1.6C.1 above.
- E. Colors: As indicated on the Drawings, or as selected by Architect.
- F. Mounting Method: Mount signs to surfaces with a minimum of 4 countersunk tamperproof stainless steel fasteners.
- G. Finishing:
 - 1. Painting: Surfaces of all items requiring a non-glare painted finish shall be properly prepared. Tool marks and other imperfections shall be filled and sanded or buffed out. Joint filler shall be sanded flush and smooth. Clean surface before applying paint or letter by removing all chalk, dust, dirt, grease and oils. Sufficient primer coats or undercoats shall be applied to achieve a smooth and uniform surface. All painted items shall be spray painted, following the paint manufacturer's recommendations concerning thinning and application. Apply additional coats when undercoats, stains or other conditions shown through the color coat of paint, until paint is of a uniform finish, color and appearance.
 - a. Linear Polyurethane Paint: Provide pre-treatment and primer in accordance with manufacturer's recommendation. Add ultra-violet inhibitors to paint subject to sunlight exposure.
 - b. Clear Linear Polyurethane Finish: Provide pre-treatment, primer and finish coat in accordance with manufacturer's recommendation. Apply 1.5 to 2 mils dry film thickness.
 - 2. Silk-Screening: Inks shall have a light fastness rating of 7-8 on the din 16526 (Wool Scale) or equal industry standard. Ink type shall be acceptable to the manufacturer of the substrate used. Screens shall be 254 polyester monofilament, mesh tensioned to no less than 18 newtons. Ink coverage shall be even, uniform and opaque unless otherwise specified.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates to receive adhesively applied identification devices before start of work to ensure that they are free of grease, oil, paint, wax, dust, dirt, or other foreign matter that might inhibit bonding to the substrate.
- B. Do not start work until deficiencies have been corrected. Start of work of this section constitutes acceptance of the surfaces.

3.02 INSTALLATION

- A. Interior and Exterior Plaque Signs: Install signs at locations indicated. Ensure that signs are installed plumb and true, at mounting heights indicated, and by method specified. Do not install signs on doors or other surfaces until finishes on such surfaces have been applied.
- B. Anchorage: Provide anchorage where necessary for fastening signs securely in place. Anchorage not otherwise specified or indicated shall include expansion shields and power-driven fasteners, when approved, for concrete and masonry; toggle or molly bolts to plaster surfaces; and full threaded wood screws to wood doors and machine screws to metal doors. Provide backing plates for mounting to expanded metal substrates.
 - 1. Adhere signs to glass with adhesive.

3.03 ADJUST AND CLEAN

- A. Repair damage to signs incurred during installation. Replace signs which cannot be repaired to new condition. Clean glass, frames, and other sign surfaces, adjust hardware for proper operation.

END OF SECTION

SECTION 10 14 53
SITE SIGNAGE

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Traffic and parking control, plaque, and informational signage.
- B. Sign supports and foundations.

1.02 RELATED SECTIONS

- A. Division 3 Section - Cast in Place Concrete System: Post hole concrete.
- B. Division 10 Section - Identification Devices: Informational signage in addition to on-site signage specified in this section.
- C. Division 32 Section - Pavement Marking: Painted accessibility marking.

1.03 SUBMITTALS

- A. Layout of sign text shall be submitted for review/acceptance prior to fabrication.

1.04 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with applicable Codes and regulations of authorities having jurisdiction for accessible parking stall identification, including the following:
 - 1. California Code of Regulations (CCR), Title 24, Parts 2, 3 and 5.
 - 2. California Building Code (CBC) Section 11B-502.6, including amendments and supplements as adopted by local jurisdiction having authority as shown on Drawings.
 - 3. Manual on Uniform Traffic Control Devices as adopted by the State Department of Transportation.
 - a. Reflectively requirements

PART 2 - PRODUCTS

2.01 TRAFFIC AND PARKING CONTROL SIGNAGE

- A. Specified Manufacturer: Flags and Banners, Unlimited.
- B. Acceptable Manufacturers:
 - 1. Hawkins Co., Inc., Berkeley, CA (510) 525-8500 or CA (800) 772-3995, www.hawkinstraffic.com.
 - 2. Safeway Sign Company, Adelanto, CA (760) 246-7070, www.safewaysign.com.
 - 3. Western Highway Products, Inc., Stanton, CA (714) 761-4811 or (800) 479-2118, www.westernhighway.com.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Plaque Signs: Provide manufacturer's standard silk-screened signs, baked-on enamel applied over Diamond Grade (DG), (10-year projected life) retro-reflectorized backing; on aluminum or 16 gage galvanized steel sheet. Provide with anti-graffiti protective overlay film. Produce smooth, even, level sign surfaces, constructed to remain flat under installed condition within a tolerance of plus or minus 1/16-inch measured diagonally. Provide two holes for post mounting.
 - 1. Traffic Entry Warning Signs: Sign text, traffic and regular parking control shall comply with requirements of California Code of Regulations (CCR) Title 24, Part 2, Section 11B-502.6 and regulations of local governing authorities. Sign equivalent to Model RFH 12824-P.
 - a. Single post mount, not less than 70 square inches with white reflectorized copy on blue background conforming to No. 15090, FED-STD 595C, one inch high letters shall read: "Unauthorized vehicles parked in designated accessible spaces not displaying distinguishing placards or special license plates issued for persons with disabilities will be towed away at

- Owner's expense. Towed vehicles may be reclaimed at _____ or by telephoning _____. Minimum fine \$250." Information to be verified prior to fabrication.
- b. Contractor shall obtain the above missing information from District for permanent inclusion in sign copy, prior to fabrication of the signs.
 - c. Position sign in a conspicuous location immediately adjacent to each entrance to off-street parking facility or immediately adjacent to and visible from each stall or space.
 - d. Sign shall be mounted 60 inches from bottom of sign to the adjacent finish grade or ground or 80 inches to pedestrian way or sidewalk or as shown on the drawings.
2. Parking Stall Signs: Sign text, accessible parking control shall comply with requirements of State of California Code of Regulations (CCR) - Title 24, Part 2, Section 11B-502.6 in addition to requirements of State of California, Department of Transportation (CALTRANS) and regulations of local authorities having jurisdiction. Signs equivalent to Model RFH 1218PB.
 - a. Single post mount, not less than 70 square inches with white reflectorized copy on blue background conforming to No. 15090, FED-STD 595C. Sign shall display a profile view of a wheelchair with occupant in white on blue background.
 - 1) Provide an additional sign below the accessible sign with the text "Minimum Fine \$250".
 - b. Position one sign at the end of each parking space designated for disabled usage.
 - c. One in every eight spaces, but not less than one, also shall display a 12-inch by 3-1/4 inch "Van Accessible" sign below the symbol of accessibility, wording per ADAAG Article 4.6.4.
 - d. Sign shall be mounted 80 inches from bottom of sign to finish grade of parking space or centered on wall at interior end of parking space at a minimum height of 60 inches above the parking space, finished grade, ground or sidewalk.
 3. Fire Lane Signs:
 - a. Single post mount, of size, color and sign text as shown on site plan or as required by local codes and fire department authority.
 - b. Quantity, location and mounting heights to be determined by local fire department authority.

2.02 INFORMATIONAL SIGNAGE

- A. Informational Signs: Locations, quantities and sign content indicated on Drawings. Signs equivalent to RFH 1218 PB 12" x 18" porcelain signs, with text as described on drawings.

2.03 ACCESSORIES AND FASTENERS

- A. Accessories: Provide welded galvanized steel fittings and galvanized or cadmium-plated steel bolts, nuts and washers.
- B. Fasteners: Provide tamper-proof galvanized steel fasteners, Tufnut System (714/962-5838), Allegheny Bolt (Tampruf brand; 516/568-1052) or equal.

2.04 SIGN SUPPORTS AND FOUNDATION

- A. Support Posts: Galvanized steel pipe, minimum 2-1/2 inch diameter or as indicated, as specified in drawings.
- B. Foundation Concrete: 2500 psi minimum concrete as specified in Division 3 Section - Cast in Place Concrete System.
- C. Provide other materials as necessary for complete installation, as recommended by manufacturer and selected by Contractor, subject to approval of Architect.

2.05 FABRICATION

- A. Provide signs and supports factory-prefabricated and pre-finished, ready for assembly and installation.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.

- B. B. Beginning of installation means installer accepts existing surfaces.

3.02 INSTALLATION

- A. Locate accessible car and van parking stall and drive approach signs where shown on Drawings and as required by applicable ordinances and regulations of authorities having jurisdiction. Verify and coordinate sign locations to prevent conflict with underground utilities.
- B. Locate informational signage as verified in field by District. Verify and coordinate sign locations to prevent conflict with underground utilities.
- C. Excavate for sign support footings to depth as shown on Drawings or, if not shown, as recommended by manufacturer. Provide forms for concrete not supported by compacted soil.
- D. Set posts in concrete base, minimum 12 inch diameter and 18 inches deep. Signs set in asphaltic paving surfaces or concrete sidewalks shall be mounted in core drilled holes minimum 8 inch diameter, 18 inches deep with top of base flush to finish. Signs mounted to walls shall be attached firmly with appropriate expansion anchors or bolting, adhesive not permitted. Seal all holes water tight.
- E. Set sign support post plumb and so sign face will be perpendicular to stall or parallel to curb face, as applicable. Set posts into pipe sleeve inserts set and anchored into concrete. Fill annular space between posts and sleeves with grouting compound.
- F. Place and cure concrete in accordance with requirements of Division 3 Section - Cast in Place Concrete System.
- G. Install plaque signage to posts, with panel facing traffic as necessary.

END OF SECTION

SECTION 10 21 13
TOILET PARTITIONS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Metal panel toilet compartment partitions and urinal screens.
- B. Solid plastic panel toilet compartment partitions and urinal screens.
- C. Attachment and operating hardware.

1.02 RELATED SECTIONS

- A. Section 01 61 16 - Volatile Organic Compound (VOC) Content Restrictions
- B. Division 10 Section - Toilet and Bath Accessories: Accessories mounted at toilet partitions.

1.03 REFERENCE STANDARDS

- A. Americans with Disabilities Act (ADA): 28 CFR Part 36, Subpart D - The Americans with Disabilities Act Accessibility Guidelines.
- B. California Building Code (CBC) disabled accessibility regulations.
 - 1. Wheelchair accessible compartment shall comply with CBC Section 11B-604.8.1.
 - 2. Toe clearance for at least one side partition of a wheelchair accessible compartment shall comply with CBC Section and Figure 11B-604.8.1.4.
 - a. It shall be 9 inches high minimum above the finish floor and 6 inches deep minimum beyond the compartment side face of the partition, exclusive of partition support members.
 - b. It shall be 12 inches high minimum above the finish floor for children's use.
 - c. Partition components at toe clearances shall be smooth without sharp edges or abrasive surfaces.
 - d. Toe clearance is not required in a compartment greater than 66 inches wide.
 - 3. Ambulatory accessible compartments shall be provided where there are six or more toilet compartments, or where the combination of urinals and water closets totals six or more fixtures.
 - a. Such compartment shall be provided in the same quantity as wheelchair accessible compartments per CBC Section 11B-213.3.1 and shall comply with CBC Section 11B-604.8.2.
 - 4. Door and door hardware for accessible compartments shall be self-closing and shall comply with CBC Section 11B-404 except that if the approach is on the latch side of an ambulatory compartment door, clearance between the door side of the compartment and any obstruction shall be 44 inches minimum. CBC Figure 11B-604.8.2.
 - 5. A door pull complying with CBC Section 11B-404.2.7 shall be placed on both sides of the accessible compartment door near the latch.
 - 6. Ambulatory Accessible Toilet Compartment doors shall not swing into the clear floor space or clearance required for any fixture or into the minimum required compartment area. CBC 11B-604.8.2.2.

1.04 SUBMITTALS

- A. Product Data: If other than specified manufacturer or specified product, submit catalog data.
 - 1. Environmental Data
 - a. Documentation indicating percentage of post-industrial and post-consumer recycled content per unit of product.
 - 1) Indicate relative dollar value of recycled content products to total dollar value of products included in project.

- B. Shop Drawings: Submit complete shop drawings indicating adjacent construction as provided for the Project. Show plan and elevation views for each room. Indicate types and thicknesses of materials and assemblies.
- C. Samples: Submit full line of color samples for selection.
 - 1. One set for initial selection, toilet partition manufacturer's full line of colors.
 - 2. After initial selection, submit four samples 6 inches square on panel material of each selected color.
- D. Working Mock-up: Submit the following.
 - 1. Submit mock-ups of showing specified hardware types.
 - 2. Submit mock-ups of specified and proposed substitute manufacturers.
- E. Closeout Submittals

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Installation shall meet requirements for the physically disabled of the California Code of Regulations (CCR) Title 24 Part 2 and latest amendments to the Americans with Disabilities Act (ADA) Accessibility Guidelines.

1.06 WARRANTY

- A. All components shall have a 15 year limited warranty.

1.07 PACKAGING, DELIVERY, STORAGE AND HANDLING

- A. Packaging: Maintain factory packaging and protective coverings.
- B. Storage: Store panels to prevent impact and moisture damage.

1.08 PROJECT CONDITIONS

- A. Field Measurements: Verify field design and field dimensions before submitting shop drawings and before fabrication.
- B. Environmental Conditions: Maintain humidity and temperature in ranges required by manufacturer.

1.09 SEQUENCING AND SCHEDULING

- A. Complete tile and painting Work before toilet partition installations.
- B. Coordinate dimensions and locations of cut-outs and panel reinforcement with approved toilet accessories.
- C. Coordinate backing and blocking provisions in walls.

PART 2 - PRODUCTS

2.01 SOLID PLASTIC PARTITIONS

- A. Specified Manufacturer: Bradley Partitions, Series 400.
- B. Acceptable Manufacturers:
 - 1. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Toilet Compartment System: Overhead-braced and floor anchored solid plastic (HDPE) panels with commercial-grade hardware. All components shall carry a 15 year limited warranty. Reinforce panels indicated to receive toilet paper holders or grab bars for mounting of the items required.
 - 1. See Division 1 Section Credit Summary for cumulative total recycled content requirements. This item may contain post-consumer or post-industrial recycled content.
- D. Urinal Screens: Wall hung construction, solid plastic (HDPE) panels.
- E. Disabled Accessibility Provisions: Provide in-swing doors as indicated and out-swing doors at accessible stalls with clear opening conforming to applicable disabled accessibility requirements of 32 inches clear width at front entry stalls and 34 inches clear at side entry stalls. Provide self-closing hinges.

- F. Toilet Compartment Panels, Pilasters and Doors and Urinal Screens: Solid plastic of high-density polyethylene (HDPE) with matte-finish.
 - 1. Panels: 1-inch thick, 55 inches high, mounted 14 inches above floor. An aluminum heat sink may be fastened to the bottom edges.
 - 2. Pilasters: 1-inch thick, 82 inches high (standard).
 - 3. Doors: 1-inch thick, 55 inches high. Minimum clear opening width (door open 90 degrees) 32 inches typically, 34 inches at side entry stalls.
 - 4. Urinal Screens: 1-inch thick, 24 inches wide, 42 inches high, mounted 14 inches above floor.
 - 5. Aluminum edging strips fastened to bottom edge of all screens, doors and panels, using theft resistant fasteners.
- G. Toilet Compartment Hardware: Commercial series, manufacturers standard Type 304 18-8 satin stainless steel with the following features and components. Bronze, aluminum or die-cast zinc alloy are not acceptable except where noted otherwise.
 - 1. Fasteners: All fasteners vandal proof, thru-bolted. See Article 2.2.
 - 2. Panel connectors: Formed continuous extruded PVC plastic channel, through-bolted.
 - 3. Door hinges: Manufacturers standard wrap-around, 8-inch long aluminum self-closing type, designed to hold door slightly open to indicate vacant compartment. Cam action hinge assembly aluminum and nylon.
 - 4. Door latch and keeper: Slide bolt designed to prevent wrong direction breakthrough of door and to have no exposed parts on door exterior. Provide aluminum slide type latch with "tough coat black" finish and integral nylon door bumper. Door bumper to accommodate projection of all door hardware and toilet accessories. Strikes to be 6 inches long.
 - 5. Coat hook: Nominal 3-inch projection, plated zamac, rubber tipped. Mount such that no portion is over 47" above finish floor. Provide only if not provided under Division 10 Section- Commercial Toilet Accessories. If not otherwise provided or shown on Drawings, provide one at each toilet stall door.
 - 6. Pilaster floor anchorage, concrete slab on grade: Stainless steel expansion anchors set into mortar bed and minimum 2 inches into structural concrete slab, with 3-inch high solid polymer resin shoe to cover hardware. Install per manufacturer's recommendations and instructions.
 - 7. Door Pulls: Manufacturer's standard surface mounted U-shaped or wire pulls both sides of accessible compartment doors.
 - 8. Disabled Accessibility Provisions: Locate operating hardware and accessories in conformance with disabled accessibility requirements and as scheduled on Drawings. Doors shall have self-closing hinges, U-shaped "hands free" handles below latch each side of door, and sliding latch.
- H. Solid Colors:
 - 1. Color: As indicated on Drawings. If not indicated on Drawings, then as selected by Architect from manufacturer's full color selection.
 - 2. Color Variation: One color per room; color may be unique to each room.
- I. Overhead Bracing: Continuous aluminum extrusion with single crown anti-grip profile, clear anodized finish. Headrail brackets 20 gage stainless steel with satin finish. Fasten by through bolting with one-way, stainless steel, tamper resistant torx head, sex bolt.
- J. Concrete Anchors: Stainless steel expansion or self-threading, as specified in Section 05 50 00 - Metal Fabrications. Lead expansion shields will not be accepted.

2.04 FASTENERS

- A. Fasteners, General:
 - 1. Fasteners: Provide stainless steel, vandal resistant fasteners throughout, one-way upset head. Molly-type fasteners, chrome plated zamac, toggle bolts and other hollow wall anchors will not be accepted. See general requirements for fasteners specified in Section 05 50 00 - Metal Fabrications and Division 6 Section - Finish Carpentry.
 - 2. Concealed Fasteners: Galvanized steel or stainless steel.
 - 3. Exposed Fasteners: Stainless steel.

4. Panel-to-Panel Fasteners: Use thru-bolted attachments at panels, doors and pilasters with sex nut bolts through clamp flanges.
5. Metal Framing Anchors: Use self-tapping metal screws through wall finish into metal framing or backing sheets.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Examination: Prior to application of gypsum board tile backing or other wall finishes, inspect framing at toilet compartments and urinal screens and ensure that necessary and proper backing is provided in wall for anchoring of panels.

3.02 PARTITION INSTALLATION

- A. Toilet Partition Installation, General: Comply with manufacturer's installation instructions, recommendations and installation sequence. Install panels rigid, straight, plumb, and level.
- B. Anchors, General: Use fasteners as shown on reviewed shop drawings. Where fasteners to substrate are not indicated, provide fasteners as specified in Section 05 50 00 - Metal Fabrications.
- C. Anchors to Concrete: Use stainless steel expansion anchors, or self-threading concrete anchors. Power-driven fasteners or lead expansion shields will not be accepted.
- D. Anchors to Masonry: Use expansion anchors to solidly-grouted cells. Power-driven fasteners, lead expansion shields or molly-type fasteners will not be accepted.
- E. Anchors to Plaster or Gypsum Wallboard (with and without tile finish): Use sheet metal screws to metal framing or backing, wood screws to wood framing or backing. Molly-type fasteners will not be accepted.
- F. Panel-to-Wall Installation: Provide clearances of not more than 1-inch between panels and walls. Secure panels to walls with [continuous] [not less than 2 stirrup] brackets so that holes for wall anchorage occur in masonry or tile joints. Secure panels in position with manufacturer's recommended anchoring devices.
- G. Panel-to-Pilaster Installation: Provide clearances of not more than 1/2-inch between pilasters and panels. Secure panels to pilasters with [continuous] [not less than two stirrup] brackets located to align with [continuous] [stirrup] brackets at wall.
- H. Floor Anchors: Set pilaster units with anchorage as specified herein. Level, plumb, and tighten installation for durable installation.
- I. Ceiling Anchors: Secure pilasters to supporting structure and level, plumb, and tighten installation with devices provided.
- J. Wall Anchors: Secure divider panels to built-in anchorage devices using concealed fasteners. Level, plumb and tighten installation with devices provided.
- K. Doors Installation: Hang doors and adjust so that tops of doors are parallel with overhead brace when doors are in closed position. Provide uniform door clearances, maximum 3/16-inch. Adjust doors to remain open at approximately 30 degrees.

3.03 ALIGNMENT AND OPERATION

- A. Alignment Tolerance: Plus or minus 1/16-inch, in any direction.
- B. Operation: Doors shall operate smoothly and evenly.
- C. Field Operation and Alignment Check: Demonstrate compliance with specified tolerance and operation requirements.
 1. Should check reveal misalignment, improper operation or inadequate anchorage, realign, adjust and re-anchor the entire installation to Architect's satisfaction.
 2. Replace deformed, marred, damaged or dented parts at no change in Contract Time or Sum.

3.04 CLEANING

- A. Cleaning After Installation: Clean exposed surfaces of panel systems using materials and methods recommended by manufacturer.
- B. Protection: Provide protection as necessary to prevent damage during remainder of construction period.
- C. Final Cleaning: Clean partitions to dust-free condition prior to Final Acceptance.

END OF SECTION

SECTION 10 28 00
TOILET ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Accessories for toilet rooms, showers, and utility rooms.
- B. Grab bars.

1.02 RELATED REQUIREMENTS

- A. Section 10 21 13 - Toilet Partitions.

1.03 REFERENCE STANDARDS

- A. 36 CFR 1191 - Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities; Final Rule; current edition; (ADA Standards for Accessible Design).
- B. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service; 2010.
- C. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar; 2010.
- D. ASTM C1036 - Standard Specification for Flat Glass; 2011e1.
- E. ASTM C1503 - Standard Specification for Silvered Flat Glass Mirror; 2008.
- F. ASTM F2285 - Standard Consumer Safety Performance Specification for Diaper Changing Tables for Commercial Use; 2004 (Reapproved 2010).

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate the work with the placement of internal wall reinforcement, concealed ceiling supports, and reinforcement of toilet partitions to receive anchor attachments.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data on accessories describing size, finish, details of function, attachment methods.
- C. Manufacturer's Installation Instructions: Indicate special procedures and conditions requiring special attention.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver toilet accessories to the site in unopened containers labeled with the manufacturer's name and model numbers as they occur on the submittals. Store accessories in their containers in a dry location.

1.07 GUARANTEE

- A. In addition to the guarantee requirements of the General Condition, guarantee mirrors against silver spoilage for a period of 10 years from the date of "Notice of Completion".

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A. Provide toilet accessories meeting the requirements for the physically disabled of the California Building Code (CBC), Title 24 Part 2, and ADA Accessibility Guidelines for Buildings and Facilities, as amended.
- B. Accessible requirements:

1. Elements of sanitary facilities shall be mounted at locations in compliance with CBC Sections 11B-602 through 11B-612.
2. Grab bars in toilet facilities and bathing facilities shall comply with CBC Section 11B-609.
 - a. Grab bars and any wall or other surfaces adjacent to grab bars shall be free of sharp or abrasive elements and shall have rounded edges.
 - b. The space around the grab bars shall be as follows:
 - 1) 1-1/2 inches between the grab bar and the wall. CBC Section 11B-609. 3.
 - 2) 1-1/2 inches minimum between the grab bar and projecting objects below and at the ends.
 - 3) 12 inches minimum between the grab bar and projecting objects above.
3. Toilet accessories required to be accessible shall be mounted with any operable part at maximum 40 inches above the finish floor. CBC Section 11B-603.5.
4. The grab bar shall not project more than 3 inches into the 48 inches minimum clear space required in front of the water closet. CBC 11B-609.3.
5. Toilet tissue dispensers are to be continuous flow type. CBC Section 11B-604. 7.
6. Toilet paper and feminine napkin disposals located on the grab bar side of the accessible toilet room or stall shall not project more than the grab bar or 3 inches from the finished wall surface nor be located closer than 1-1/2 inches clear of the tangent point of the grab bar. (Legacy DSA Interpretation.)
 - a. Accessories surface mounted above grab bar will restrict usability.
7. All other accessories shall not project more than 4 inches from wall surface, but cannot encroach into any required clear space.

2.02 MANUFACTURERS

- A. Products listed are made by Bobrick Washroom Equipment Co.; www.bobrick.com.
- B. Other Acceptable Manufacturers:
 1. American Specialties, Inc: www.americanspecialties.com.
 2. Bradley Corporation: www.bradleycorp.com.
 3. Substitutions: Section 01 60 00 - Product Requirements.
- C. All items of each type to be made by the same manufacturer.

2.03 MATERIALS

- A. Accessories - General: Shop assembled, free of dents and scratches and packaged complete with anchors and fittings, steel anchor plates, adapters, and anchor components for installation.
 1. Grind welded joints smooth.
 2. Fabricate units made of metal sheet of seamless sheets, with flat surfaces.
- B. Keys: Provide 4 keys for each accessory to District; master key all lockable accessories.
- C. Stainless Steel Sheet: ASTM A666, Type 304.
- D. Stainless Steel Tubing: ASTM A269, Type 304 or 316.
- E. Mirror Glass: Float glass, ASTM C1036 Type I, Class 1, Quality Q2, with silvering, protective and physical characteristics complying with ASTM C1503.
- F. Fasteners, Screws, and Bolts: Stainless steel except where fully concealed may be hot dip galvanized, tamper-proof, security type.

2.04 FINISHES

- A. Stainless Steel: No. 4 satin brushed finish, unless otherwise noted.
- B. Back paint components where contact is made with building finishes to prevent electrolysis.

2.05 TOILET ROOM ACCESSORIES

- A. Toilet Paper Dispenser: Double roll, recess, stainless steel unit with pivot hinge.
 1. Product: B-3888 manufactured by Bobrick.

- B. Paper Towel Dispenser: Surface-mounted, stainless steel unit that dispenses C-fold or multifold towels.
 - 1. Product: B-262 manufactured by Bobrick.
- C. Waste Receptacle: Recess flush with wall, stainless steel; seamless wall flanges, continuous piano hinges.
 - 1. Waste receptacle capacity: 12 gallons.
 - 3. Product: Classic Series B-35643; manufactured by Bobrick.
- D. Soap Dispenser: Liquid soap dispenser, wall-mounted, surface, with plastic cover; push type soap valve, check valve, and window gage refill indicator.
 - 1. Valve shall operate with less than 5 lbs. of force and shall extend no more than 1-1/4" from face of dispenser.
 - 2. Minimum Capacity: 40 ounces.
 - 3. Product: Classic Series B-2111 by Bobrick.
- E. Seat Cover Dispenser: Stainless steel, surface-mounted, reloading by concealed opening at base.
 - 1. Minimum capacity: 250 seat covers.
 - 2. Product: Classic Series B-221 by Bobrick.
- F. Feminine Napkin Disposal Units: Equip top and bottom with heavy duty, stainless steel piano hinges. Form self-closing tops with integral stainless steel handles and provide international graphic symbol identifying napkin disposal. Provide units of Type 304 stainless steel satin finish, all welded construction. Equip with tumbler locks to access receptacle. Surfaced-mounted B-270 by Bobrick.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Before covering wall framing with gypsum board, examine framing to ensure that backing plates and grab bar mounting kits have been installed behind surface mounted accessories in such positions as to receive all attachment screws.
- B. Verify that pipes, vents, conduits and other construction features do not protrude into rough wall opening space required for recessed accessories.
- C. Verify existing conditions before starting work.
- D. Verify exact location of accessories for installation.
- E. Verify that field measurements are as indicated on drawings.
- F. See plans for installation of blocking, reinforcing plates, and concealed anchors in walls and ceilings.
- G. Do not proceed with the work until unsatisfactory conditions have been resolved.

3.02 PREPARATION

- A. Deliver inserts and rough-in frames to site for timely installation.
- B. Provide templates and rough-in measurements as required.

3.03 INSTALLATION

- A. Install accessories in accordance with manufacturers' instructions in locations indicated on the drawings.
 - 1. Exception: Install surface mounted accessories other than grab bars with screws, molly or toggle bolts to metal studs or through backing plates attached directly to studs.
- B. Install plumb and level, securely and rigidly anchored to substrate.
- C. Mounting Heights: As required by accessibility regulations, unless otherwise indicated.
 - 1. Grab Bars: As indicated on the drawings, typical 33 inches to centerline.
 - 2. Mirrors: 40 inch, measured to bottom of mirrored surface.
 - 3. Seat Cover Dispenser:
 - a. Shall not be located closer than 1-1/2" clear of the tangent point of the grab bar.
 - b. Provide minimum 5-inches clear under unit for refilling.
 - 4. Clothes Bumper: Mount 48 inches above finish floor.
 - 5. Shelf with Mop and Broom Holders: 38 to 44 inches.

6. Other Accessories: As indicated on the drawings.

3.04 ADJUSTING AND CLEANING

- A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.
- B. Clean and polish all exposed surfaces in strict accordance with manufacturer's recommendations after removing temporary labels and protective coatings.

END OF SECTION

SECTION 22 42 16.13
COMMERCIAL LAVATORIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
1. Lavatories.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for lavatories.
 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.
- B. Shop Drawings: Include diagrams for power, signal, and control wiring of automatic faucets.

1.3 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Counter cutout templates for mounting of counter-mounted lavatories.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For lavatories and faucets to include in operation and maintenance manuals.
1. In addition to items specified in Section 01 78 00 "Closeout Submittals," include the following:
 - a. Servicing and adjustments of automatic faucets.

1.5 CODE COMPLIANCE

- A. Plumbing Fixtures Mounting Heights: All fixtures standard rough-in catalogued heights unless specified or shown otherwise on the architectural drawings.
- B. Cleanout:
1. Where required for purposes intended.
 2. Cover set flush with finished surface.
 3. Urinal cleanouts to be below fixture on centerline.
- C. Floor Sinks and Floor Drains: Set top flush with finished floor unless noted otherwise on the architectural drawings.
- D. Plumbing fixtures and accessories provided in a toilet room or bathing room required to comply with CBC Section 11B-213.2 shall comply with CBC Section 11B-213.3.
- E. Accessible plumbing fixtures shall comply with all the requirements in CBC Division 6.
- F. Heights and location of all accessible fixtures shall be mounted according to CBC Section 11B-602 through 11B-612.
- G. Accessible lavatories and sinks shall be mounted with the front of the higher of the rim or counter surface 34" maximum above the finish floor or ground. Depth of lavatories or sinks shall not interfere with knee and toe clearance provided in accordance with CBC Section 11B-306 when a forward approach is required. CBC Sections 11B-606.3 and 11B-606.7.
- H. Water supply and drain pipes under accessible lavatories and sinks shall be insulated or otherwise configured to protect against contact. There shall be no sharp or abrasive surfaces under accessible lavatories and sinks. CBC Section 11B-606.5.

PART 2 - PRODUCTS

2.1 LAVATORIES

- A. Lavatory: Stainless steel, wall mounted, with back. Basis of Design: BK Resources (BKHS-ADA-S-P-G) or approved equal.
 - 1. Fixture:
 - a. Standard: ASME A112.19.2/CSA B45.1.
 - b. Type: For wall hanging.
 - c. Size: 20" x 22"
 - d. Faucet-Hole Punching: Two holes.
 - e. Faucet-Hole Location: Top.
 - f. Color: Stainless Steel.
 - g. Mounting Material: Chair carrier.
 - 2. Faucet: Chicago Faucets (Model 333-E2805-665PSHAB).
 - 3. Support: ASME A112.6.1M, Type II, concealed-arm lavatory carrier.

2.2 SUPPLY FITTINGS

- A. NSF Standard: Comply with NSF/ANSI 61, "Drinking Water System Components - Health Effects," for supply-fitting materials that will be in contact with potable water.
- B. Standard: ASME A112.18.1/CSA B125.1.
- C. Supply Piping: Chrome-plated-brass pipe or chrome-plated copper tube matching water-supply piping size. Include chrome-plated-brass or stainless-steel wall flange.
- D. Supply Stops: Chrome-plated-brass, one-quarter-turn, ball-type or compression valve with inlet connection matching supply piping.
- E. Operation: Loose key.
- F. Risers:
 - 1. NPS 3/8 (DN 10).
 - 2. ASME A112.18.6, braided-or corrugated-stainless-steel, flexible hose riser.

2.3 WASTE FITTINGS

- A. Standard: ASME A112.18.2/CSA B125.2.
- B. Drain: Grid type with NPS 1-1/4 (DN 32) offset and straight tailpiece.
- C. Trap:
 - 1. Size: NPS 1-1/2 by NPS 1-1/4 (DN 40 by DN 32).
 - 2. Material: Chrome-plated, two-piece, cast-brass trap and swivel elbow with 0.032-inch- (0.83-mm-) thick brass tube to wall; and chrome-plated, brass or steel wall flange.
 - 3. Material: Stainless-steel, two-piece trap and swivel elbow with 0.012-inch- (0.30-mm-) thick stainless-steel tube to wall; and stainless-steel wall flange.

2.4 INSULATION PROTECTION

- A. Rigid high-impact, stain-resistant molded vinyl.
- B. P-trap vent hole at bottom.
- C. Vent holes at angle stops.
- D. Manufacturer: Truebro Lav Guard 2, IPS Corporation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify

actual locations of piping connections before lavatory installation.

- B. Examine counters and walls for suitable conditions where lavatories will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install lavatories level and plumb according to roughing-in drawings.
- B. Install supports, affixed to building substrate, for wall-mounted lavatories.
- C. Install accessible wall-mounted lavatories at handicapped/elderly mounting height for people with disabilities or the elderly, according to ICC/ANSI A117.1.
- D. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings.
- E. Seal joints between lavatories, counters, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 07 90 05 "Joint Sealers."
- F. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible lavatories.

3.3 CONNECTIONS

- A. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
- B. Comply with water piping requirements specified on drawings.
- C. Comply with soil and waste piping requirements specified on drawings.

3.4 ADJUSTING

- A. Operate and adjust lavatories and controls. Replace damaged and malfunctioning lavatories, fittings, and controls.
- B. Adjust water pressure at faucets to produce proper flow.
- C. Install fresh batteries in battery-powered, electronic-sensor mechanisms.

3.5 CLEANING AND PROTECTION

- A. After completing installation of lavatories, inspect and repair damaged finishes.
- B. Clean lavatories, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.
- C. Provide protective covering for installed lavatories and fittings.
- D. Do not allow use of lavatories for temporary facilities unless approved in writing by Owner.

END OF SECTION

SECTION 31 23 16
EXCAVATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Excavating for building volume below grade, footings, slabs-on-grade, paving, site structures, and utilities within the building.
- B. Trenching for utilities outside the building to utility main connections.

1.02 CONDITIONS

- A. Verify that survey bench mark and intended elevations for the Work are as indicated.

1.03 COORDINATION OF SPECIFICATION REQUIREMENTS

- A. Coordinate these Specification Section requirements with specifications included on Drawings. Comply with more stringent requirements and with those requirements of authorities having jurisdiction.
- B. Comply in full with the direction (recommendations) given in the Geotechnical Report.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that survey bench mark and intended elevations for the work are as indicated.

3.02 PREPARATION

- A. Identify required lines, levels, contours, and datum locations.

3.03 EXCAVATING

- A. Underpin adjacent structures that could be damaged by excavating work.
- B. Excavate to accommodate new structures, construction operations, and paving/site structures.
- C. Shoring and Bracing: Provide all materials and services necessary to properly engineer and construct shoring for excavations. Selection of materials and design of shoring, underpinning and bracing of new and existing structures shall be solely the responsibility of the Contractor.
 - 1. Shoring design shall comply with State of California Trenching and Shoring Manual issued by Offices of Structure Construction; 2011.
- D. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.
- E. Slope banks of excavations deeper than 4 feet (1.2 meters) to angle of repose or less until shored, per CalOSHA requirements for Type C Soil.
 - 1. Machine slope banks to angle of repose or less, until shored.
- F. Do not interfere with 45 degree bearing splay of foundations.
- G. Cut utility trenches wide enough to allow inspection of installed utilities.
- H. Hand trim excavations. Cut through tree roots with a sharp axe. Remove loose matter.

- I. Remove lumped subsoil, boulders, and rock up to 1/3 cu yd (0.25 cu m) measured by volume.
- J. At no additional cost, correct areas that are over-excavated and load-bearing surfaces that are disturbed.
- K. Grade top perimeter of excavation to prevent surface water from draining into excavation.
- L. Remove excavated material that is unsuitable for re-use from site.
- M. Stockpile excavated material to be re-used in area designated on site.
- N. Remove excess excavated material from site.

3.04 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field inspection and testing.
- B. Provide for visual inspection of load-bearing excavated surfaces before placement of foundations.
- C. Scarification, over excavation and all other excavations will be subject to the approval of the Soils Engineer.

3.05 PROTECTION

- A. Prevent displacement of banks and keep loose soil from falling into excavation; maintain soil stability.
- B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

END OF SECTION

SECTION 32 12 16
ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Single course bituminous concrete paving.
- B. Double course bituminous concrete paving.
- C. Surface sealer.
- D. This section compliments and shall be coordinated with Civil Drawing specifications / requirements. The most stringent requirements shall be utilized.
- E. Asphaltic concrete paving for vehicular traffic and curbs, including necessary patching and repair of damaged new and existing paving.
- F. Patching and repair of existing asphaltic concrete paving for previous damage, for underground utility work and where damaged by new construction.

1.02 RELATED REQUIREMENTS

- A. Section 32 13 13 - Concrete Paving: Concrete curbs.
- D. Section 32 13 13 - Concrete Paving: Paving.
- E. Section 32 17 23.13 - Painted Pavement Markings: Parking and Traffic Control Pavement Markings.

1.03 REFERENCE STANDARDS

- A. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; The Asphalt Institute ; 1994.
- B. AI MS-19 - A Basic Asphalt Emulsion Manual; The Asphalt Institute ; Third Edition.
- C. ASTM D946 - Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction ; 2009a.
- D. Standard Specifications for Public Works Construction ("Green Book"), by Joint Cooperative Committee of the Southern California Chapter of the American Public Works Association and the Southern California Districts of the Associated General Contractors of California. Standard Specifications is published by and available from Building News, Division of BNI Publications, Inc., Los Angeles, CA, (213/202-7775).

1.04 SUBMITTALS

- A. Materials List: List source and quality standard for all asphaltic concrete materials.
- B. Weighmaster's Certificates or certified delivery tickets for each truckload of bituminous material delivered to site.
- C. Certificates of Conformance: Asphalt, aggregate and sterilant materials.
- D. Mix Designs: Submit designs for asphaltic concrete prepared by a materials laboratory under direct supervision of a Civil Engineer licensed in the State of California or a standard mix design proven in actual performance.

1.05 QUALITY ASSURANCE

- A. Perform Work in accordance with Local Municipality of Public Work's standard.
- B. Mixing Plant: Conform to Local Municipality of Public Work's standard.
- C. Obtain materials from same source throughout.

1.06 REGULATORY REQUIREMENTS

- A. Conform to applicable code for paving work on public property.
- B. Where reference is made to Standard Specifications, the following shall apply.
 - 1. Perform off-site Work in public rights-of-way in accordance with requirements of authorities having jurisdiction, including Standard Specifications for Public Works Construction, as amended and adopted by those authorities. For conditions not indicated otherwise on Contract Drawings, conform to Standard Details adopted by authorities having jurisdiction, including Standard Details for Public Works Construction, as amended and adopted by those authorities.
 - 2. Perform on-site Work as indicated and referenced on Contract Drawings and as specified herein.
- C. The quantity of volatile organic compounds (VOC) used in weed killer, tack coat, primer and other materials shall not exceed limits permitted under current regulations of South Coast Air Quality Management District (AQMD).

1.07 FIELD CONDITIONS

- A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen; or when rain is imminent.
- B. Place bitumen mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General: Aggregate base, prime coat paint binder, bituminous surface course and other materials shall be as noted on the Contract Drawings and shall comply with requirements of authorities having jurisdiction.
- B. Asphalt Cement: ASTM D 946.
- C. Aggregate for Base Course: In accordance with State of California Highways standards. Crushed Aggregate Base in accordance with Standard Specifications, Subsection 200-2.2.
- D. Asphalt Concrete Materials: Standard Specifications, Subsection 203-6.
- E. Seal Coat: AI MS-19, slurry type.
 - 1. Guard Top by Industrial Asphalt Inc., Irwindale, CA.
 - 2. Satin Seal by Blue Diamond Co., Long Beach, CA.
 - 3. Over-Kote by Diversified Asphalt Products, Anaheim, CA.
 - 4. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 ASPHALT PAVING MIXES AND MIX DESIGN

- A. Asphalt Paving Mix: Standard Specifications, C2-AR-4000.
 - 1. Standard Specifications, C2-AR-4000.
 - 2. Standard Specifications, PG-70-10.
- B. Base Course: 3.0 to 6 percent of asphalt cement by weight in mixture in accordance with AI MS-2.

2.03 SOURCE QUALITY CONTROL

- A. Test mix design and samples in accordance with AI MS-2.

2.04 ACCESSORIES

- A. Headers and Stakes: 2 x 6 nominal preservative treated douglas fir (PTDF), except at curves provide laminated 1 x 6 nominal preservative treated douglas fir. Stakes, 2 x 3 by 18-inches long PTDF at 48-inches on center maximum. Use hot dipped galvanized nails only.
- B. Pavement Reinforcing Fabric: Petromat by Amoco Fabrics and Fibers Co., Austell, GA (800/445-7732), or approved equal. Non-woven polypropylene fabric conforming to Standard Specifications, Subsection 213-1.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Refer to geotechnical report, provided under separate cover, notes on Contract Drawings, and requirements of authorities having jurisdiction.
- B. Verify that compacted subgrade and granular base is dry and ready to support paving and imposed loads.
- C. Verify gradients and elevations of base are correct.
- D. Fine grading, checking, shaping, and compacting of subgrade shall be complete before start of asphaltic concrete Work.
- E. Soil Sterilant: Sterilize soil areas to receive asphaltic concrete paving. Apply soil sterilant in accordance with manufacturer's instructions and applicable environmental regulations. Take care to confine application to the areas to be paved.
- F. Curbs and Gutters: Gutters shall be in place and cured prior to start of asphaltic concrete Work. Provide lumber ramping at all locations where rolling equipment or vehicles cross new concrete paving, curbs and gutters.
- G. Headers: Place headers with tops flush with finish asphaltic concrete surfaces. Back headers with stakes.

3.02 BASE COURSE

- A. Refer to Drawings.

3.03 PREPARATION - PRIMER

- A. Apply primer in accordance with State of California Highways standards.
- B. Apply primer on aggregate base or subbase at uniform rate of 0.25 gal/sq yd.
- C. Apply primer to contact surfaces of curbs, gutters.
- D. Use clean sand to blot excess primer.

3.04 PREPARATION - TACK COAT

- A. Apply tack coat in accordance with manufacturer's instructions.
- B. Apply tack coat on asphalt or concrete surfaces over subgrade surface at uniform rate of 0.10 gal/sq yd.
- C. Apply tack coat to contact surfaces of curbs, gutters and previously placed or existing paving.
- D. Joining Pavement: Expose, cut and clean edges of existing pavement to straight, vertical surfaces for full depth of existing pavement. Paint edge with asphalt emulsion before placing new asphaltic concrete. Joints in new paving shall be in accordance with Standard Specifications.

3.05 PLACING ASPHALT PAVEMENT - SINGLE COURSE

- A. Install Work in accordance with Standard Specifications, Subsection 302-5.
- B. Place asphalt within 24 hours of applying primer or tack coat.
- C. Place to 2 inch compacted thickness minimum or as indicated on Civil Drawings.
- D. Install gutter drainage grilles and frames and manhole frames in correct position and elevation.
- E. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position.
 - 1. Compact (roll) asphaltic concrete in accordance with Standard Specifications, Subsection 302-5.6, using machine rollers.
 - a. Compaction by vehicular traffic is prohibited.
 - b. Compact areas inaccessible to rolling equipment with machine-powered tamper.
- F. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

3.06 PLACING ASPHALT PAVEMENT - DOUBLE COURSE

- A. Install Work in accordance with Standard Specifications, Subsection 302-5.

- B. Place asphalt binder course within 24 hours of applying primer or tack coat.
- C. Place binder course to 2 inch compacted thickness minimum or as indicated on Civil Drawings.
- D. Place wearing course within two hours of placing and compacting binder course.
- E. Place wearing course to 2 inch compacted thickness minimum or as indicated on Civil Drawings.
- F. Install gutter drainage grilles and frames and manhole frames in correct position and elevation.
- G. Compact pavement by rolling to specified density. Do not displace or extrude pavement from position.
 - 1. Compact (roll) asphaltic concrete in accordance with Standard Specifications, Subsection 302-5.6, using machine rollers.
 - a. Compaction by vehicular traffic is prohibited.
 - b. Compact areas inaccessible to rolling equipment with machine-powered tamper.
- H. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.07 CURBS

- A. Install extruded asphalt curbs of standard profile as indicated.

3.08 SEAL COAT

- A. Apply seal coat after surface course application, in accordance with manufacturer's recommendations.
- B. Apply seal coat to surface course and asphalt curbs in accordance with Standard Specifications, Subsection 302-8.2.
- C. Add water to specified seal coat material. When air temperatures of 90 degrees F or more are encountered during application, consult manufacturer for recommendations.
- D. If pavement surface exhibits imperfections of roller marks, rock pockets, ridges or depressions as determined by the Architect, the addition of sand aggregate to seal coat, and amounts thereof, shall be as recommended by the manufacturer.
- E. A second application shall be made after first coat has dried to the touch. When sand is added to the first seal coat, two additional coats without extra sand shall be applied.
- F. Allow seal coat to dry cure before permitting traffic or striping, per manufacturer recommendations.

3.09 PAVEMENT REPAIR AND PAVING

- A. Preparation of existing pavement: Where indicated, remove loose asphaltic concrete, cleanout "pot holes" and cracks, remove dirt, oil and other foreign materials.
- B. Repair holes with full paving section as specified. Repair "alligatoring" with asphalt "skin-patch". Fill all cracks larger than 1/4-inch wide with asphalt emulsion slurry.
- C. Tack Coat: Apply asphalt oil AR-4000 or AR-8000, as required for jobsite condition, at metered application rate of no less than a range from .2 to .3 gallons per square yard of fabric or as directed by manufacturer and to provide 100 percent fabric saturation and ample bonding for paving section.
- D. Fabric Reinforcement: Place fabric smooth side up in tack coat with 2 to 4 inch overlap. Hand-broom to remove wrinkles. Apply additional tack coat to joints and between overlapped fabric layers.
- E. Overlay Asphalt: Place single course asphalt, 1-1/2 inches compacted thickness, in conformance with Standard Specifications, Subsection 302-5.

3.10 TOLERANCES

- A. Flatness: Maximum variation of 1/4 inch measured with 10 foot straight edge.
- B. Compacted Thickness: Within 1/4 inch of specified or indicated thickness.
- C. Variation from True Elevation: Within 1/2 inch.

3.11 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for quality control.
- B. Provide field inspection and testing. Take samples and perform tests in accordance with AI MS-2.

- C. Test: Flood test all paving to demonstrate positive drainage. No standing water shall remain 1-hour after test.

3.12 PROTECTION

- A. Immediately after placement, protect pavement from mechanical injury for 2 days or until surface temperature is less than 140 degrees F.
 - 1. After final rolling, prohibit all traffic on asphaltic concrete until mix has fully cooled and set. Minimum time, in all cases shall be 6 hours.

3.13 CLEANING

- A. After completion of paving operations, clean all existing and new improvements that have been soiled, especially by oil tracking from asphalt tanks or placement in general.
- B. For Substantial Completion review, broom clean and wash paving with hoses. Clean residue from landscaping installation.

END OF SECTION

SECTION 32 13 13
CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete sidewalks, stair steps, integral curbs, gutters, median barriers, parking areas, and roads.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 01 - Concrete Forming and Accessories.
- B. Section 03 30 01 - Concrete Reinforcing.
- C. Section 07 90 05 - Joint Sealers: Sealant for joints.
- D. Section 32 12 16 - Asphalt Paving: Asphalt wearing course.
- G. Section 32 17 23.13 - Painted Pavement Markings: Pavement markings.

1.03 REFERENCE STANDARDS

- A. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute International ; 1991 (Reapproved 2002).
- B. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International ; 2010.
- C. ACI 302.1R - Guide for Concrete Floor and Slab Construction ; 2004 (Errata 2007).
- D. ACI 303R - Guide to Cast-in-Place Architectural Concrete Practice ; 2004.
- E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute International ; 2000.
- F. ACI 305R - Hot Weather Concreting; American Concrete Institute International ; 2010.
- G. ACI 306R - Cold Weather Concreting; American Concrete Institute International ; 2010.
- H. ACI 503 - Standard Specification for Bonding Plastic Concrete to Hardened Concrete with a Multi-Component Epoxy Adhesive.
- I. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete ; 2007.
- J. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement ; 2009b.
- K. ASTM C33 - Standard Specification for Concrete Aggregates ; 2011.
- L. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens ; 2010.
- M. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete ; 2011.
- N. ASTM C150 - Standard Specification for Portland Cement ; 2011.
- O. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method ; 2010b.
- P. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete ; 2007.
- Q. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete ; 2010a.
- R. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete ; 2008a.
- S. ASTM C685/C685M - Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing ; 2010.

- T. ASTM C 881/C 881M - Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete ; 2002.
- U. ASTM C 979 - Standard Specification for Pigments for Integrally Colored Concrete ; 2005.
- V. ASTM C 1059 - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete ; 1999 (Reapproved 2008).
- W. ASTM C 1077 - Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation ; 2009.
- X. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (nonextruding and Resilient Bituminous Types) ; 2004 (Reapproved 2008).
- Y. ASTM D1752 - Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction ; 2004a (Reapproved 2008).
- Z. Standard Specifications for Public Works Construction ("Green Book"), by Joint Cooperative Committee of the Southern California Chapter of the American Public Works Association and the Southern California Districts of the Associated General Contractors of California. Standard Specifications is published by and available from Building News, Division of BNI Publications, Inc., Los Angeles, CA, (213/202-7775).

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Mix Design: Design mixes for each concrete mix.
- C. Product Data: Provide data on joint filler, admixtures, and curing compound.
 - 1. Material Certificates signed by manufacturers for each of the following:
 - a. Cementitious materials and aggregates.
 - b. Steel reinforcement and reinforcement accessories.
 - c. Admixtures.
 - d. Curing compounds.
 - e. Joint fillers.
 - 2. Colored concrete product data and color selections.
- D. Samples: Submit 6 sample panels, 6 x 6 inch in size illustrating each finish.
 - 1. Samples can be of sufficient size for color selection and/or verification.
- E. Shop drawings: For pattern layout and verification.
- F. Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and typical details.

1.05 QUALITY ASSURANCE

- A. Industry Standard: Perform concrete paving Work in accordance with ACI 301.
- B. Regulatory Requirements: Where reference is made to Standard Specifications, the following shall apply.
 - 1. Where reference is made to Standard Specifications, the following shall apply:
 - a. Perform off-site Work in public rights-of-way as indicated on the Contract Drawings and in accordance with requirements of authorities having jurisdiction, including Standard Specifications for Public Works Construction, as amended and adopted those authorities. For conditions not indicated otherwise on Contract Drawings, conform to Standard Details adopted by authorities having jurisdiction, including Standard Details for Public Works Construction, as amended and adopted those authorities.
 - b. Perform on-site Work as indicated and referenced on the Contract Drawings and as specified herein.
 - 2. Conform to California Department of Transportation (CalTRANS) standard specifications.
 - 3. Conform to Standard Specifications for Public Works Construction.
 - 4. Conform to California Code of Regulations (CCR), Volume 2, Part 2, Chapters 18, 18A, 19 and 19A.

5. Conform to California Building Code (CBC), Chapter 11B and ADAAG for accessibility requirements.
 - a. Portland cement concrete paving shall be stable, firm and slip resistant. Comply with Section 11B-302 and 11B-403.
 - b. Concrete paving and concrete finishes along accessible routes of travel shall be at least as slip-resistant as that described as a medium salted finish for slopes of less than 6%, and slip resistant at slopes of 6% or greater; CBC 11B-403.2.
 6. Comply with OSHA and Cal-OSHA requirements.
 7. Continuous surfaces, including walks and sidewalks, shall have a continuous common surface, not interrupted by steps or by abrupt changes in level exceeding 1/2-inch (CBC 11B-303.3) and shall have a minimum width of 48 inches CBC 11B-403.5.1.
 8. Surface cross slopes shall not exceed 2 percent on any accessible path of travel.
- C. Source Quality Control: Obtain like materials from one source throughout.
- D. Lines and Levels: Established by State of California licensed Surveyor or registered Civil Engineer. Costs of surveying services shall be included in the Contract Sum.
- E. Installer Qualifications for stamped or imprinted concrete:
1. The Installer shall provide a qualified foreman or supervisor who has a minimum of three years experience with imprinted and textured concrete, and who has successfully completed at least five stamped or imprinted concrete installations of high quality and similar in scope to that required.
 2. The concrete is cast in place, on the job site, by trained and experienced workmen who shall be employed by a firm that is a licensed and Manufacturer certified Contractor.

1.06 MOCK-UP

- A. Install minimum 4 ft. by 4 ft. mock-up of concrete flatwork for each texture or color specified.
- B. Install mock-up one month prior to installation, located where directed by Architect.
- C. Use identical forming system, subgrade type, reinforcing, expansion joints, score joints, finishing and edge trim as specified for installation.
- D. Architect approval required prior to proceeding with finish installation. Acceptable sample will serve as quality basis for evaluating subsequent work.
 1. Refinish mock-up area as required to produce acceptable work.
 2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
- E. Mock-up may not be used in final installation. Remove mock-up materials from site and dispose of legally.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Delivery, Storage and Handling: Comply with requirements specified for regular concrete in Section 03 30 01 - Cast in Place Concrete System.

PART 2 PRODUCTS

2.01 BASE MATERIAL

- A. Sub-Base and Aggregate Base Material under Portland Cement Concrete Paving: For pavement subject to vehicular traffic, provide sub-base and aggregate base material as indicated on the Drawings. Aggregate base is not required under portland cement concrete paving subject only to pedestrian traffic in normal use.

2.02 PAVING ASSEMBLIES

- A. Comply with applicable requirements of ACI 301.
- B. Design paving for parking, and movement of trucks up to 60,000 lbs.
- C. Concrete Sidewalks and Median Barrier: 3,000 psi 28 day concrete, 4 inches thick, buff color Portland cement, exposed aggregate finish.

- D. Parking Area Pavement: 4,000 psi 28 day concrete, 5 inches thick, 6/6 - 6 x 6 inch mesh reinforcement, wood float finish.

2.03 FORM MATERIALS

- A. Form Materials: As specified in Section 03 30 01.
- B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D 1751) or sponge rubber or cork (ASTM D 1752).

2.04 REINFORCEMENT

- A. General: As indicated on Drawings and specified following. Reinforcement for portland cement concrete paving in public rights-of-way shall comply with all applicable requirements in the Standard Specifications for Public Works Construction and Standard Details, as adopted by local authorities having jurisdiction.
- B. Reinforcing Steel and Welded Wire Reinforcement: Types specified in Section 03 30 01.
- C. Welded Wire Mesh: ASTM A185, welded plain cold-drawn steel wire fabric, minimum 6 x 6 / 1.9 x 1.9 or as noted on Drawings or required by reference standards and details. Furnish reinforcement in flat sheets, not rolls.
- D. Tie Wires: 18 gage minimum, black annealed steel.
- E. Dowels: ASTM A615/A615M Grade 60 (420); deformed billet steel bars; unfinished finish.

2.05 PERFORMANCE REQUIREMENTS

- A. Albedo reflectance of finish concrete shall be minimum 0.30.

2.06 CONCRETE MATERIALS

- A. Obtain cementitious materials from same source throughout.
- B. Cement: ASTM C 150 Air Entraining - Type IIA or Type V portland type, grey color. Unless sulfate resistance is determined unnecessary by sulfate content tests.
- C. Fine and Coarse Mix Aggregates: ASTM C33.
- D. Water: Clean, and not detrimental to concrete.
- E. Chemical Admixtures: ASTM C494/C494M, Type A - Water Reducing, Type B - Retarding, Type C - Accelerating, Type D - Water Reducing and Retarding, Type E - Water Reducing and Accelerating, Type F - Water Reducing, High Range, and Type G - Water Reducing, High Range and Retarding.
 - 1. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

2.07 ACCESSORIES

- A. Acid Etch Solution: Muriatic type mixed to a 20 percent solution. One-part muriatic acid (20% Baume) and four parts water.
- B. Liquid Curing Compound: ASTM C 309, Type 1, Class A. Comply with all applicable air pollution requirements.
- C. Surface Retarder:
 - 1. Acceptable Products:
 - a. Preco EAC-S, manufactured by Fosroc, Inc., Georgetown, KY, or approved equal.
 - b. Substitutions: See Section 01 60 00 - Product Requirements.
- D. Joint Sealer: Type as specified in Section 07 90 05.
- E. Epoxy-Bonding Adhesive: ASTM C 881, two component epoxy resin, capable of humid curing and bonding to damp surface, of class and grade to suit requirements if required, and as follows: Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.08 CONCRETE MIX DESIGN

- A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.
- B. Comply with requirements specified in Section 03 30 01 - Cast in Place Concrete System.
- C. Concrete Mix for Pedestrian (Sidewalk) Pavements, Natural Color, unless indicated otherwise: Standard Specification for Public Works Construction, Section 201-1.1.2 - Class 520-B-2500, with minimum slump of 4-inches, except concrete paving in public rights of way shall be as required authorities having jurisdiction.
- D. Concrete Mix for Trash Enclosure and other Exterior Slabs on Grade: ASTM C94 - Ready-Mixed Concrete, Alternative No. 2, minimum 28 day compressive strength as indicated on Drawings or, if not indicated, 3000 psi.
- E. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
 - 1. Use accelerating admixtures in cold weather or set retarding admixtures in hot weather only when approved by Architect/Engineer. Do not use calcium chloride.
- F. Concrete Properties:
 - 1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: 3,000 psi.
 - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
 - 3. Calcined Pozzolan Content: Maximum 10 percent of cementitious materials by weight.
 - 4. Silica Fume Content: Maximum 5 percent of cementitious materials by weight.
 - 5. Water-Cement Ratio: Maximum 40 percent by weight.
 - 6. Maximum Slump: 3 inches.

2.09 MIXING

- A. Transit Mixers: Comply with ASTM C94/C94M.

2.10 DETECTABLE WARNING PAVEMENT

- A. Cast-In-Place colored concrete system meeting nominal dimensional and color contrast requirements of Section 4.29.2 of the ADAAG.

2.11 ACCESSORY MATERIALS

- A. Soil Sterilant: As specified in Standard Specifications for Public Works Construction. Soil sterilant shall comply with all applicable environmental protection and hazardous materials laws and regulations.
- B. Moisture Retaining Cover at Exposed Aggregate: Polyurethane film, 6 mil thick, black color.
- C. Headers and Stakes: Pressure preservative treated douglas fir, 2x6 nominal size except at curves provide laminated 1x6. Use hot dipped galvanized nails only.
- D. Expansion Joint Filler: ASTM D1751, premolded, compressible 1/2-inch thick non-extruding bituminous type resilient filler, compatible with joint backing and sealing products.
- E. Joint Backing and Sealer: As specified in Section 07 90 05 - Joint Sealers.
- F. Stair Strips and Nosing:
 - 1. Nosing and strips for concrete casting shall be provided with Sure-Hold anchors, chevron shaped continuous full length of nosing or strip.
 - 2. Nosings and anchors for attachment to hydrated concrete stairs shall be provided with countersunk holes for screws and fasteners.
 - 3. Colors: As selected by Architect to contrast with stair color. Colors shall extend uniformly through the filler.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads. As indicated on Civil Drawings, as specified in Earthwork Sections.

- B. Fine grading, checking, shaping, and compacting of subgrade shall be complete before start of concrete paving Work.
- C. Verify gradients and elevations of base are correct.

3.02 SUBBASE

- A. Refer to Drawings.

3.03 PREPARATION

- A. Project Conditions:
 - 1. Water and Dust Control: Maintain control of concrete dust and water at all times. Do not allow adjacent planting areas to be contaminated.
 - 2. Do not place pavement when base surface or ambient temperature is less than 40 degrees F (4 degrees C) or if base surface is wet or frozen.
 - 3. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.
- B. Moisten base to minimize absorption of water from fresh concrete. Do not place concrete on standing water.
- C. Coat surfaces of manhole frames with oil to prevent bond with concrete pavement.
- D. Notify Architect minimum 24 hours prior to commencement of concreting operations.
- E. Curbs and Gutters: Schedule portland cement concrete curbs and gutters to be in place and cured prior to start of adjoining asphaltic concrete and portland cement concrete paving Work.

3.04 COORDINATION WITH EXISTING CONSTRUCTION

- A. Connection to Existing Construction: Where new concrete is doweled to existing construction, drill holes in existing concrete, insert steel dowels and pack with non-shrinking grout.
- B. Preparation of Existing Concrete: Prepare previously placed concrete by cleaning with steel brush and apply bonding agent in accordance with manufacturer's instructions.

3.05 FORMING

- A. Place and secure forms to correct location, dimension, profile, and gradient.
 - 1. Surfaces and Edges: Except where special finishes and tooled edges are indicated, provide all exposed finish surfaces of dense concrete with sharp arises and outside corners.
 - 2. Recesses and Openings: As indicated on Drawings or as directed.
- B. Concrete Formwork:
 - 1. Construct formwork accurately and to configurations and dimensions indicated for finish concrete Work.
 - 2. Formwork shall be substantial, mortar-tight and braced to maintain position and shape during placement of reinforcing and concrete.
 - 3. Hold forms rigidly in place by stakes, clamps, spreaders and braces where required to ensure rigidity.
 - 4. Construct curb forms with smooth side placed next to exposed concrete face.
 - 5. Curb forms shall have true, smooth upper edge.
 - 6. Depth of curb forms at back of curbs shall be equal to full depth of curb.
 - 7. Depth of face forms shall be equal to full face height of curb.
 - 8. Benders or thin plank forms may be used to form curves and at grade changes and curb returns.
 - 9. Back forms for curb returns may be made of 1/2-inch thick benders cleated together for full depth of the curb.
 - 10. Formwork shall not deviate more than 1/4-inch maximum from required positions and levels.
 - 11. Verify formwork alignment and levels as Work proceeds, promptly making adjustments and adding bracing as necessary.
- C. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

1. Remove the form on the front of curbs in not less than one hour nor more than 6 hours after the concrete has been placed.
 2. Remove side forms for sidewalks, gutter depressions, island paving and driveways, not less than 12 hours after the finishing has been completed.
- D. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.06 REINFORCEMENT

- A. Reinforcement Placement, General: Locate reinforcement as indicated on Drawings or in Standard Specifications, whichever is more stringent.
1. Locate reinforcement to provide required cover by concrete. If not otherwise indicated on Drawings or in Standard Specifications, provide concrete cover in compliance with ACI 318, Table 3.3.2.3.
 2. Place, support and secure reinforcement against displacement.
- B. Reinforcement Spacing: Space reinforcement as indicated on Drawings or in Standard Specifications, whichever is more stringent. If not indicated, maintain clear spacing of two times bar diameter but not less than 1-1/2 inches nor less than 1-1/3 times maximum size aggregate.
- C. Coordination: Locate reinforcement to accommodate embedded products and formed openings and recesses.
- D. Reinforcement Supports: Provide load bearing pads under supports or provide precast concrete block bar supports.
- E. Wire Fabric Placement: Place fabric in sheets as long as practicable, lapping adjoining pieces at least one full mesh and lace splices with 16 gage wire. Offset end laps in adjacent widths to prevent continuous laps. Extend fabric to within 1-inch of edge at slabs on grade. Cut mesh at expansion joints and full depth control joints.
- F. Interrupt reinforcement at contraction and expansion joints.
- G. Place dowels to achieve pavement and curb alignment as detailed.
1. Secure tie dowels in place before depositing concrete. Provide No. 3 bars for securing dowels where no other reinforcement is provided.

3.07 COLD AND HOT WEATHER CONCRETING

- A. Follow recommendations of ACI 305R when concreting during hot weather.
- B. Follow recommendations of ACI 306R when concreting during cold weather.
- C. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

3.08 PLACING CONCRETE

- A. Mixing: If batch plant is within travel time not exceeding maximum limits, transit mix concrete in accordance with ASTM C94. If travel time exceeds limits, provide alternative means for mixing and submit for review and approval.
- B. Place concrete in accordance with ACI 304R.
- C. Do not place concrete when base surface is wet.
- D. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.
- E. Concrete Conveying and Placement: Convey and place concrete in accordance with ACI 301 and requirements specified in Section 03 30 01 - Cast in Place Concrete System.
- F. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.
- G. Place concrete to pattern indicated.
- H. Apply surface retarder only to surfaces indicated in accordance with manufacturer's instructions.

- I. Natural Color Concrete Paving and Other Exterior Concrete: Provide natural color concrete typically, including at trash enclosure and loading door areas (exterior slabs on grade).

3.09 JOINTS

- A. Align curb, gutter, and sidewalk joints.
- B. Place 3/8 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated. Place in all concrete walks, other exterior flatwork and concrete curbs and gutters. If expansion joints are not indicated, comply with standard details and specifications of authorities having jurisdiction, including Standard Details for Public Works Construction and Standard Specification for Public Works Construction, as applicable.
 - 1. Place expansion control filler to correct elevation and profile. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
 - 2. Secure to resist movement by wet concrete.
 - 3. Coordinate locations to align expansion joints in adjoining concrete walks, curbs, gutters and other exterior flatwork.
 - 4. Provide expansion joints also at beginning and end of all curved segments.
 - 5. Provide expansion joints also at intersections of concrete curbs and gutters and building footing.
 - 6. Provide expansion joints also at intersections of concrete paving and building footing.
 - 7. Lay out expansion joint locations to occur where possible at penetrations such as handrail posts and columns.
 - 8. Place expansion control filler to correct elevation and profile.
 - 9. Align curb, gutter, and sidewalk expansion joints.
- C. Provide scored joints:
 - 1. As indicated on Drawings. If not indicated, locate joints in compliance with Standard Details.
 - 2. Between sidewalks and curbs.
 - 3. Between curbs and pavement.
 - 4. Lay out control joint locations to occur at penetrations such as handrail posts and columns and where shown on Drawings.
 - 5. Refer to Architectural, Landscape and Civil Drawings for additional information and joint locations.
- D. Provide keyed joints as indicated.
- E. Saw cut contraction joints 1/8 inch wide at an optimum time after finishing. Cut 1/3 into depth of slab.

3.10 FINISHING

- A. Concrete Paving Finish: ACI 301, two-step trowel finish, followed after surface has achieved initial set by flooding of surface and light rubbing with bristle brush so that concrete fines are exposed slightly.
 - 1. Finish surface less than 6 percent shall receive medium broom finish resembling medium grit sandpaper. CBC 11B-403.2.
 - 2. Finish surface greater than 6 percent shall receive heavy broom finish. CBC 11B.403.2. Surfaces shall have static coefficients of friction of 1.3 to 1.6 (dry) and 1.2 to 1.4 (wet) when field tested in accordance with ASTM C1028.
- B. Sidewalk Paving: Light broom, texture perpendicular to direction of travel with troweled and radiused edge 1/8 inch radius.
 - 1. Tooled Joints: 1-inch deep by 3/16-inch wide tooled joints with 1/8-inch radius corners.
- C. Curbs and Gutters: Comply with Standard Specifications.
- D. Inclined Vehicular Ramps: Broomed perpendicular to slope.
- E. Specific Finishes:
 - 1. Broomed: Pull broom across freshly [floated] [troweled] concrete to produce [fine] [medium] [coarse] texture in [straight] [wavy] lines perpendicular to main line of traffic [or in an alternating panel, basket weave pattern where indicated on Drawings]. Do not dampen brooms.
 - 2. Stamped/Imprinted Pattern: Provide stamped pattern indicated per manufacturer's written recommendations and instructions, including requirement for condition of concrete surface.

- a. While concrete is still in its plastic state, apply the tool/texture pattern to the surface of the concrete. Properly tamp tools into the surface to achieve the required texture, with uniformity of pattern and depth of stamping. Utilize bond breaker to keep tools from sticking to fresh concrete.
 - 1) Release material shall be applied to the troweled surface prior to imprinting.
 - 3. Trowel: Precautions should be taken to ensure that the surface is uniformly troweled so that it will not be slippery. Do not over-trowel or burnish the surface.
- F. Curing and Sealing:
- 1. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.
 - 2. Curing, Concrete Curbs and Gutters: Apply curing compound as specified in Section 03 30 01 - Cast In Place Concrete System, immediately after finishing. Apply compound in accordance with manufacturer's instructions.
 - 3. Precautions shall be taken in hot weather to prevent plastic cracking resulting from excessively rapid drying at surface as described in CIP 5 Plastic Shrinkage Cracking published by the National Ready Mixed Concrete Association.
 - 4. Do not cover concrete with plastic sheeting.

3.11 JOINT SEALING

- A. See Section 07 90 05 for joint sealer requirements.

3.12 TOLERANCES

- A. ACI 301, Class B, except paving in public rights-of-way shall comply with the Standard Specifications.
- B. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.
- C. Maximum Variation From True Position: 1/4 inch.

3.13 FIELD QUALITY CONTROL

- A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000.
 - 1. Provide free access to concrete operations at project site and cooperate with appointed firm.
 - 2. Tests of concrete and concrete materials may be performed at any time to ensure conformance with specified requirements.
- B. Compressive Strength Tests: ASTM C 39/C 39M. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 75 cu yd or less of each class of concrete placed each day.
 - 1. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
 - 2. Perform one slump test for each set of test cylinders taken.
- C. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

3.14 PROTECTION

- A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.
- B. Do not permit pedestrian or vehicular traffic over pavement for 7 days minimum after finishing.
- C. Prohibit all vehicular traffic across pedestrian paving unless suitable base and reinforcement have been added.
- D. Provide lumber ramping and plywood covering where curbs and gutters are subject to vehicular and equipment traffic during construction.
- E. Provide protection of colored concrete in accordance with colored concrete manufacturer's instructions and recommendations.

END OF SECTION

**SECTION 32 17 13
PARKING APPURTENANCES**

PART1 - GENERAL

1.1 SUMMARY:

- A. Section Includes: Furnishing and installing parking appurtenances as indicated and as specified.
- B. Related Documents: The Conditions of the Contract and Division 1 apply to this section as fully as if repeated herein.

1.2 REGULATORY REQUIREMENTS:

Provide signs related to disability requirements which meet the requirements of the 2016 California Building Code (CBC) Title 24 Part 2 Chapter 11B.

PART 2 - PRODUCTS

2.1 CONCRETE WHEEL STOPS:

- A. Precast concrete using smooth metal forms, minimum 2,000 psi concrete, with two No. 3 horizontal reinforcement bars; 48 inches long unless otherwise indicated, minimum 5 inches high, sides battered, ends battered or vertical, with edges rounded to 3/4 inch radius and drainage slots on underside.
- B. Reinforcing Materials: As specified on Drawings.
- C. Concrete Materials: As specified on Drawings.

2.2 METAL SIGNS; GENERAL

- A. Materials:
 - 1. Mfr's/Products: Safetysign.com; engineering grade (type 1) sheeting laminated to reflective aluminum, as a standard of quality.
 - 2. Reflectorized sign shall have radius corners and smooth eased edges.
 - 3. Minimum two 1/4" diameter galv. bolts (or screws) with applicable washers per sign for mounting to wall, steel post or fence.
 - 4. Galvanized steel posts (where applicable): See Drawings.
 - 5. Concrete footing (where applicable): See Drawings.
- B. General:
 - 1. Type Imagery:
 - a. Type Style: "Helvetica Medium, sans serif, all UPPER case.
 - b. Arrangement: Use "standard" spacing between letters, words, numbers, and lines; centered typically.
 - 2. Colors:
 - a. Sign Colors, and/or Background Paint Colors: Except where required by Code, colors shall be as selected by Architect from mfr.'s standard color range (18 colors minimum); two colors max.
 - b. Type Imagery: White, black or color, as selected by Architect to contrast with plaque or background color; two colors max.
 - c. Code Required Colors: Where colors are mandated by Codes or Regulations, conform to those requirements; all other colors to be as selected by Architect

2.4 METAL ACCESSIBILITY SYMBOL SIGNS

- A. General: Conform to Article 2.05 (except as indicated), California Title 24, and State Accessibility Codes.
- B. Symbol Style: Recognized standard "International Symbol of Accessibility" such as that developed by the American Institute of Graphics for the U.S. Department of Transportation; typically the International Accessibility/Wheelchair Symbol.
- C. Types:
 - 1. Accessible parking only stall/space signs. "Fine" Sign
- D. See drawings for size, text, graphics and configuration.

2.5 METAL ACCESSIBLE PARKING ENTRANCE SIGNS

- A. General: Conform to Article 2.05 (except as indicated), California Title 24, and State Accessibility Codes.
- B. Types:
 - 1. Parking Lot Entrance Signs.
- C. See drawings for size, text, and configuration.

PART 3 - EXECUTION

3.1 SETTING WHEEL STOPS:

Secure each wheelstop with two 3/4" by 16" long galvanized steel anchor bolts through prepared holes, one at each end of bumper. Install bolts flush with top of wheel stops. Furnish templates for setting anchor bolts in portland cement concrete paving. Drive anchors through holes in wheel stops into asphaltic concrete paving.

3.2 INSTALLATION OF SIGNS:

Install signs in locations indicated and as required by CBC Title 24 Part 2 and ADA Accessibility Guidelines for Buildings and Facilities. Set posts into pipe sleeve inserts set and anchored into concrete. Fill space between pipe posts and sleeves with quick setting hydraulic cement.

END OF SECTION

SECTION 32 17 23.13
PAINTED PAVEMENT MARKINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Parking lot markings, including parking bays, crosswalks, arrows, handicapped symbols, and curb markings.
- B. Roadway lane markings and crosswalk markings.
- C. "No Parking" curb painting.

1.02 RELATED REQUIREMENTS

- A. Section 32 12 16 - Asphalt Paving.
- B. Section 32 13 13 - Concrete Paving.

1.03 REFERENCE STANDARDS

- A. FS TT-B-1325 - Beads (Glass Spheres); Retro-Reflective; Rev. D, 2007.
- B. FHWA MUTCD - Manual on Uniform Traffic Control Devices for Streets and Highways; U.S. Department of Transportation, Federal Highway Administration; <http://mutcd.fhwa.dot.gov>; current edition.
- C. City Standard Specifications for Public Works Construction, latest edition.
 - 1. Standard Specifications shall be as amended and adopted by authorities having jurisdiction, including the City and County, as applicable.
 - 2. Where reference is made to Standard Details, such reference shall be to the Standard Details accompanying the Standard Specifications, as amended and adopted by the AHJ, City, and County, as applicable.
 - 3. Wherever term "Agency" occurs in Standard Specifications, it shall be understood to mean authorities having jurisdiction for purposes of the Contract.
 - 4. Wherever term "Engineer" occurs in Standard Specifications, it shall be understood to mean Architect for purposes of the Contract.

1.04 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Certificates: Submit for each batch of paint and glass beads stating compliance with specified requirements.
- D. Maintenance Materials: Furnish the following for District's use in maintenance of project.
 - 1. See Section 01 60 00 - Product Requirements, for additional provisions.
 - 2. Extra Paint: 2 containers, 1 gallon size, of each type and color.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Pavement markings for disability requirements shall meet requirements of California Building Code (CBC), Title 24, Part 2, Chapter 11B and ADA Accessibility Guidelines for Buildings and Facilities, per latest amendments.

- a. Surface slopes of accessible parking spaces and access aisle shall be the minimum possible and shall not exceed 2% slope in any direction. CBC Section 11B-502.4.
- b. Loading and unloading access aisle shall be marked by a border painted blue. Within the blue border, hatched lines in a maximum of 36 inches on center shall be painted a color contrasting with the parking surface, preferably blue or white. CBC Figures 11B-502.2, 11B-502.3, and 11B-502.3.3.
- c. When blue color is used it shall conform to Color No. 15090 per Federal Standard 595C.
- d. Accessible parking spaces serving a particular building or facility shall be located on the shortest accessible route to an entrance complying with CBC Section 11B-206.4.
- e. Accessible parking spaces serving more than one accessible entrance shall be dispersed and located on the shortest accessible route to the accessible entrances.
- f. Accessible parking spaces in a parking facility not serving a particular building or facility shall be located on the shortest accessible route to an accessible pedestrian entrance of the parking facility. CBC Section 11B-208.3.1.
- g. Minimum number of required accessible parking spaces shall be provided in accordance with CBC Table 11B-208.2 for each parking facility provided on a site.
- h. For every six or fraction of six accessible parking spaces, at least one shall be an accessible van parking space. CBC 11B-208.2.4.
- i. Accessible parking spaces and access aisles shall comply with CBC Section 11-502 and shall be dimensioned to the centerline of the marked lines as follows:
 1. Parking spaces and access aisles shall be marked according to CBC Figures 11B-502.2, 11B-502.3 and 11B-502.3.3. Their surfaces shall comply with CBC Section 11B-302 and shall be at the same level with slopes not steeper than 1:48 in any direction. CBC Section 11B-502.4.
 2. Parking spaces shall be 9'x18' minimum and van parking spaces shall be 12'x18' minimum with an adjacent access aisle of 5'x18' minimum. Access aisles shall be placed on either side of the parking spaces except to be located on the passenger side for van parking spaces. Van parking spaces shall be permitted to be 9'x18' minimum where the access aisle is 8'x18' minimum.
 3. Access aisles shall be marked by a blue painted borderline around their perimeter. The area within the blue borderlines shall be marked with hatched lines a maximum of 36" on center in a color contrasting with that of the aisle surface, preferably blue or white. Access aisle marking may extend beyond the minimum required length. CBC Section 11B-502.3.3.
 4. Access aisles (accessible parking spaces as well - similar application) shall not overlap the vehicular way. CBC Section 11B-502.3.4.
 5. A vertical clearance of 8'-2" minimum shall be provided for accessible parking spaces, access aisles, and vehicular routes serving them. CBC Section 11B-502.
- j. At least one passenger loading zone shall be provided in every continuous 100 linear feet of loading zone space, or fraction thereof, complying with CBC Sections 11B-209 and 11B-503 as follows:
 1. Vehicle pull-up spaces shall be 8'x20' minimum.
 2. Access aisles shall be 5' wide minimum x full length of vehicle pull-up spaces they serve and shall be adjacent and parallel to the vehicle pull-up spaces. They shall be at the same level with each other and with slopes not steeper than 1:48 in any direction. Access aisle shall adjoin an accessible route and shall not overlap the vehicular way.
 3. Access aisles for passenger drop-off and loading zone shall be marked with a painted borderline around their perimeter. The area within the borderlines shall be marked with hatched lines a maximum of 36" on center in a color contrasting with that of the aisle surface. CDC Section 11B-503.3.3.
 4. A vertical clearance of 9'-6" minimum shall be provided for vehicle pull-up spaces, access aisles, and a vehicular route serving them connecting a vehicular entrance and a vehicular exit. CBC Section 11B-503.5.
- k. Bus loading zones and bus stops shall comply with CBC Sections 11B-209 and 11B-810.2 as follows:

1. Bus boarding and alighting areas shall be of 8'x5' minimum, with 8' measured perpendicular to the curb or vehicle roadway. Slopes in 8' direction shall be 1:48 maximum. Slopes in 5' direction shall be the same as that of the roadway, to the maximum extent practicable. CBC Figure 11B-810.2.2.
 2. Bus shelters shall provide a minimum of 30"x48" clear floor or ground space (36"x48" or 36"x60" in an alcove per CBC 11B-305.7), with slopes not steeper than 1:48 in any direction, entirely within the shelter complying with CBC Section 11B-305.
 3. Bus shelters shall be connected by an accessible route complying with CBC Section 11B-402 to a boarding and alighting area complying with CBC Section 11B-710.2 and Figure 11B-810.3.
 4. Newly constructed bus stop boarding and alighting areas shall provide a detectable transition between the boarding/alighting area and the roadway; the detectable transition shall consist of a curb with the face sloped at 35 degrees maximum from vertical or detectable warnings complying with CBC Section 11B-705.1.1 and 11B-705.1.2.4.
2. Conform to State of California, Department of Transportation (CALTRANS) Standard Specifications, Section 84, Traffic Control Markings, as amended and adopted by authorities having jurisdiction.
 3. Where reference is made to Standard Specifications, the following shall apply.
 - a. Perform off-site Work in public rights-of-way in accordance with requirements of authorities having jurisdiction. For conditions not indicated otherwise on Contract Drawings, conform to Standard Details adopted by authorities having jurisdiction, including Standard Details for Public Works Construction, as amended and adopted by those authorities.
 - b. Perform on-site Work as indicated and referenced on the Contract Drawings and as specified herein.
 4. Comply at time of installation with Air Quality standards of:
 - a. Sacramento Metropolitan Air Quality Management District (SMAQMD).
- B. Applicator Qualifications: Company regularly engaged in pavement marking, well-experienced in use of machine-applied painted stripes and other markings, with three years of verifiable experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver paint in containers of at least 5 gallons accompanied by batch certificate.
- B. Deliver glass beads in containers suitable for handling and strong enough to prevent loss during shipment accompanied by batch certificate.
- C. Store products in manufacturer's unopened packaging until ready for installation.
- D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.07 FIELD CONDITIONS

- A. Do not apply marking paint when wind velocity causes uncontrollable overspray or excessively rapid drying.
- B. Sequence and Schedule: Apply pavement markings after asphaltic concrete and portland cement concrete and interlocking concrete paving Work are complete and properly cured and, if applicable, sealer has been applied to asphaltic concrete and landscaping Work is complete.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General: Provide standard factory-mixed, quick drying and non-bleeding colors, conforming to Standard Specifications, as amended and adopted by the AHJ, City, and County, as applicable.
- B. Line and Zone Marking Paint: Rapid Dry, Oil Base, VOC compliant, MPI No. 97 Latex Traffic Marking Paint; color(s) as indicated.

1. Roadway Markings: Thermoplastic paint, with reflective materials required by authorities having jurisdiction.
 2. Parking Lots: Fast-dry type. If required by authorities having jurisdiction for Work in public rights-of-way, include reflective material in paint. Paint for marking curbs shall not require reflective material. See Color Schedule in Part 3.
 3. Handicapped Symbols: Blue shall conform to Color No. 15090 Federal Standard 595C.
 4. Substitutions: See Section 01 60 00 - Product Requirements.
- C. Reflective Glass Beads: FS TT-B-1325, Type I (low index of refraction), Gradation A (coarse, drop-on); with silicone or other suitable waterproofing coating to ensure free flow.
1. Comply with CALTRANS State Specification No. 8010-51J-22, Type II.
- D. Temporary Marking Tape: Preformed, reflective, pressure sensitive adhesive tape in color(s) required; Contractor is responsible for selection of material of sufficient durability as to perform satisfactorily during period for which its use is required.
- E. Raised Reflective Pavement Markers
1. Specified Manufacturer: Pac-Tec, Inc., Heath, OH (800/848-7025; local source Western Highway Products 800/479-3783).
 2. Ray-O-Lite Raised Reflective Pavement Markers:
 - a. Molded optic grade Methyl Methacrylate conforming to ASTM D4802 with fill material consisting of thermosetting compound designed for impact and wear resistance.
 - b. Optical Performance: Reflective intensity of reflecting surface at 1/5 degree divergence angle shall be not less than the following when the incident light is parallel.

<u>Horiz. Eng. Angle</u>	<u>Blue</u>
0 Degrees	3.0
20 Degrees	1.5

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- C. Clean surfaces thoroughly prior to installation.
 1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.
- D. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.
- E. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.
 1. Lay out markings as shown on Drawings. Use guide lines, templates and forms for precise edges and spacings.
 - a. At off-site and on-site public rights-of-way, obtain review and approval of layout by authorities having jurisdiction.

- F. Temporary Pavement Markings: When required or directed by Architect, apply temporary markings of the color(s), width(s) and length(s) as indicated or directed.
 - 1. After temporary marking has served its purpose, remove temporary marking by carefully controlled sandblasting, approved grinding equipment, or other approved method so that surface to which the marking was applied will not be damaged.
 - 2. At Contractor's option, temporary marking tape may be used in lieu of temporary painted marking; remove unsatisfactory tape and replace with painted markings at no additional cost to District.

3.03 INSTALLATION

- A. General: Using proper masking, stencils and application equipment, apply marking paint at rate recommended by paint manufacturer or approximately one gallon per 150 square feet (equivalent to approximately one gallon for 450 lineal feet of 4-inch wide stripe), whichever is greater.
 - 1. Equipment shall be capable of operating at 125 psi air pressure, agitate paint constantly and hold exactly to the alignment.
 - 2. Equipment used for applying reflectorized striping shall be equipped with a bead dispenser capable of applying beads at the specified rate.
- B. Begin pavement marking as soon as practicable after surface has been cleaned and dried.
- C. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.
- D. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.
- E. Comply with FHWA MUTCD manual (<http://mutcd.fhwa.dot.gov>) for details not shown.
- F. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.
- G. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.
 - 1. Apply paint in one coat only.
 - 2. Wet Film Thickness: 0.015 inch, minimum.
 - 3. Length Tolerance: Plus or minus 3 inches.
 - 4. Width Tolerance: Plus or minus 1/8 inch.
- H. Curbs: Paint full vertical face and first 6-inches of horizontal plane at top of curb or combination curb/paving. Provide minimum 2 coats paint.
 - 1. Provide stenciled text in the height, spacing and typeface as indicated on Drawings.
- I. Roadway Traffic Lanes: Use suitable mobile mechanical equipment that provides constant agitation of paint and travels at controlled speeds.
 - 1. Conduct operations in such a manner that necessary traffic can move without hindrance.
 - 2. Place warning signs at the beginning of the wet line, and at points well in advance of the marking equipment for alerting approaching traffic from both directions. Place small flags or other similarly effective small objects near freshly applied markings at frequent intervals to reduce crossing by traffic.
 - 3. If paint does not dry within expected time, discontinue paint operations until cause of slow drying is determined and corrected.
 - 4. Skip Markings: Synchronize one or more paint "guns" to automatically begin and cut off paint flow; make length of intervals as indicated.
 - 5. Use hand application by pneumatic spray for application of paint in areas where a mobile paint applicator cannot be used.
 - 6. Traffic Striping: Uniform line width, typically 4 inches unless otherwise indicated (minimum 3 inches), with uniform, straight edges without overspray. Provide reflective materials in striping.
 - 7. Traffic Directional Markings and Accessibility Logo: Provide reflective material in traffic directional markings.
 - 8. Distribute glass beads uniformly on the paint lines within ten seconds without any waste, applied at rate of 6 pounds per gallon of paint; if the marking equipment does not have a glass bead dispenser,

use a separate piece of equipment adjusted and synchronized with the paint applicator; remove and replace markings having faulty distribution of beads.

- a. Embed beads into paint coating to a depth of one half their diameter.
- J. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.
 - 1. Mark the International Handicapped Symbol at indicated parking spaces.
 - a. Accessibility Logo: Provide minimum of 2 coats paint.
 - b. Stall Marking:
 - 1) Use single-line style striping between parking stalls, unless otherwise indicated.
 - 2) Notations: Identify compact parking stalls and reserved stalls with text as indicated on Drawings.
 - 3) Accessible Stalls: Markings as indicated and in compliance with CBC Sections 11B-B-502.2 and 11B-502.3 and Standard CBC Figures 11B-502.2 and 1, as applicable. 11B-502.3
 - (a) Painted lines and markings on pavement shall be minimum 3 inches wide, color as indicated on Drawings.
 - (b) Tactile warning lines shall comply with CBC Section 11B-705.1.1.
 - (c) Tactile warning devices shall comply with CBC, see Section 32 17 26 - Detectable Tactile Warning Surfaces.
 - c. Hatching: Provide hatching in parking areas, including accessible parking stalls, as indicated on Contract Drawings or as required by Standard Details. Should Contract Drawings and Standard Details conflict, comply with the more stringent.
 - 2. Hand application by pneumatic spray is acceptable.
- K. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.
- L. Speed Bumps: Provide minimum 2 coats paint on raised portion.

3.04 DRYING, PROTECTION, AND REPLACEMENT

- A. Protect newly painted markings so that paint is not picked up by tires, smeared, or tracked.
 - 1. Prevent construction activities over completed markings, except light vehicular and pedestrian traffic.
- B. Provide barricades, warning signs, and flags as necessary to prevent traffic crossing newly painted markings.
- C. Allow paint to dry at least the minimum time specified by the applicable paint standard and not less than that recommended by the manufacturer.
- D. Touch-up paint as required to provide clean, straight lines and full coverage of surfaces.
- E. Remove and replace markings that are applied at less than minimum material rates; deviate from true alignment; exceed length and width tolerances; or show light spots, smears, or other deficiencies or irregularities.
- F. Remove markings in manner to avoid damage to the surface to which the marking was applied, using carefully controlled sand blasting, approved grinding equipment, or other approved method.
- G. Replace removed markings at no additional cost to District.
 - 1. Clean up all oil, paint splatters and other stains from surfaces in preparation for Substantial Completion review.

3.05 COLOR SCHEDULE

Location	Color
Driving lane striping	White
Parking dividers	White
Loading zone markings	Yellow

Firelanes/No Parking zone markings	Red
Accessibility zone markings	Blue No. 15090 per Federal Standard 595C*
Accessible loading and cross-hatching	White with Blue perimeter at Asphalt Paving.* Blue at Concrete Paving
Directional arrows	White
Text	White
Speed Bumps	Yellow

*Contrasting color per CBC 2016 and Division of the State Architect IR 11B-7

END OF SECTION

SECTION 32 17 26
TACTILE WARNING SURFACING

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Detectable warning surfaces at curb ramps and where accessible path crosses drive aisle.

1.02 RELATED SECTIONS

- A. Section 32 12 16 - Asphalt Paving.
- B. Section 32 13 13 - Concrete Paving.

1.03 SUBMITTALS

- A. Product Data: Manufacturers installation instructions, method of anchorage and details.
- B. Samples: Two each of 12" x 12" samples of Manufacturers Standard Colors.
- C. Certification: Manufacturers certification that product meets ADA for tactile warning surfaces.

1.04 WARRANTY

- A. Provide manufacturer's 5 year written warranty that color will remain color-fast and raised truncated domes will not break-down under normal foot traffic. Also comply with DSA Bulletin 10/1/02, revised 9/27/04.

PART 2 - PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A. Detectable warnings shall be in conformance with California Building Code (CBC) requirements, Section 11B-705.1 and ADA Standards for special warnings for disabled persons.
- B. Color yellow for detectable warning surface shall conform to Color No. 33538 per Federal Standard 595C. CBC Section 11B-705.1.1.5.
- C. Provide minimum 5 year Warranty per DSA Bulletin 10/1/02, revised 9/27/04.
- D. Truncated dome pattern in-line, not staggered.

2.02 MATERIAL

- A. Porcelain tile pavers with raised truncated dome in-line pattern (not staggered), to exact size, height, and pattern as required by CBC Section 11B-705.1.
- B. Slip resistant, and suitable for long-term exterior exposure.
- C. Color: Manufacturer's yellow color complying with Federal Color No. 33538 as shown in Table IV of Standard No. 595C. Color shall be in contrast to adjacent surfaces.
- D. Size:
 - 1. Tile Size: 12" x 12".
 - 2. Curb Ramp: Cover entire ramp surface, or portion as detailed.
 - 3. Drive Aisle: Minimum 36 inches wide unless indicated otherwise.
- E. Mortar Bed Installation: Install on latex mortar bed / leveling bed and latex modified thinset with shear strength of 375 psi or greater.

2.03 DETECTABLE WARNING SURFACES - CONCRETE PAVER

- A. Specified Manufacturer: Wausau Tile, local representative Banning, CA (800/231-4836), or equal.
- B. Acceptable Manufacturers:

1. Cast in Tact Warning Panels by Masons Supply, Portland, OR (503/234-4321; local representative Hub Construction Supplies and Equipment, San Bernardino, CA (909/889-0161).
2. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 CONCRETE PAVER MATERIAL

- A. Concrete pavers Model ADA-2 Truncated Dome, nominal 12 inches by 12 inches by 2 inches.
 1. Nominal dimensional and color contrast requirements meeting Section 4.29.2 of the ADAAG.
- B. Mortar bed set into depressed paving as recommended and instructed per manufacturer and Tile Council of America Handbook.

2.05 DETECTABLE WARNING SURFACES - COMPOSITE

- A. Specified Manufacturer: Carsonite International, Carson City, NV (800/648-7974).
- B. Acceptable Manufacturers:
 1. ADA Solutions, Inc., North Billerica, MA; local representative Hub Construction Supplies and Equipment, San Bernardino, CA (909/889-0161).
 2. Answer Industries, Ontario, CA (909/230-4064).
 3. Armortile distributed by Specialty Coatings, Inc., Union, NJ (888/755-7361).
 4. Engineered Plastics, Inc., Buffalo, NY (800/682-2525).
 5. High Quality Tactile Systems, Woburn, MA (800/935-8450).
 6. Van-Duerr Industries, Inc., Chino, CA (800/497-2003).
 7. Substitutions: See Section 01 60 00 - Product Requirements.

2.06 COMPOSITE MATERIAL

- A. Carsonite composite - rigid tiles with raised truncated dome pattern, to exact size, height, and pattern as required by CBC.
- B. Slip resistant, and suitable for long-term exterior exposure.
- C. Color: Manufacturer's standard colors as selected by Architect. Color shall be in contrast to adjacent surfaces.
- D. Size:
 1. Curb Ramp: Cover entire ramp surface.
 2. Drive Aisle: 36 inches wide.
- E. Attachment of Selected Warning Surface:
 1. Adhesives: Provide permanent adhesive suitable for exterior use on substrate, and as recommended by Manufacturer.
 2. Mechanical Fasteners: Provide mechanical fastening method and material as recommended by Manufacturer.
 3. Cast-In-Place: Tamp and vibrate tile into fresh concrete and tool edges flush with concrete surface.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Provide adhesive, mortar bed, cast into wet concrete or mechanical fasteners as recommended by manufacturer for concrete or asphalt paving surface.
- B. Protect installed material from foot or vehicle traffic to prevent any tile movement during curing period.

END OF SECTION

SECTION 32 31 13
CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Galvanized steel chain link fence framework, fabric, and accessories.
- B. Gates and supporting hardware.

1.2 SUBMITTALS

- A. Product Data: Manufacturer's technical data, specifications, and installation instructions for fence and gate posts, fabric, gates, and accessories.
- B. Shop Drawings: Indicate plan layout of fence, gates, each post, and details of post foundation installation, hardware anchorage, extension arms, gate swing, hardware, accessories, and schedule of components.

1.3 QUALITY ASSURANCE

- A. Structural Design: Fence, gates and all components shall be designed and constructed to withstand 90 mph wind loading. Pipe frame sizes indicated for particular uses are minimum.
- B. Regulatory Requirements: Provide fences and gates meeting life safety and accessibility requirements of California Building Code (CBC) Title 24, Part 2, Chapter 10 and 11B; and ADA Accessibility Guidelines for Buildings and Facilities, per latest amendments.

PART 2 - PRODUCTS

2.1 GALVANIZED STEEL FENCING

- A. Acceptable Manufacturers:
 - 1. Allied Tube and Conduit Corp.
 - 2. American Chain Link Fence Company.
 - 3. American Tube Company.
 - 4. Anchor Fence, Inc.
 - 5. Capitol Wire and Fence Co., Inc.
 - 6. Century Tube Corp.
 - 7. Cyclone Fence Div./USX Corp.
- B. Steel Chain Link Fabric: Comply with Chain Link Fence Manufacturers Institute (CLFMI) Product Manual. Furnish one-piece fabric widths up to 12 feet high. Wire size includes zinc coating.
 - 1. Size: 2-inch mesh opening, 0.148-inch diameter (9 gage) wire.
 - 2. Galvanized steel finish: ASTM A817, Type 2, Class 1 or Class 2, zinc-coated (galvanized), with not less than 2.0 oz. zinc per sq. ft. of uncoated wire surface on wire coated before weaving (Class 1) or not less than 2.0 oz. zinc per sq. ft. of uncoated wire surface on wire of fabric coated after weaving (Class 2), as determined from the average of two or more samples and not less than 1.8 oz. zinc per sq. ft. of uncoated wire surface for any individual sample.
 - 3. Fabric Selvage: Knuckled at bottom and top selvage.

- C. Steel Framework: For posts, rails, braces, and gate frames, galvanized steel, 1-1/4 inch NPS (1.66-inch OD) Type I or II steel pipe. Conform to strength requirements of ASTM F669. Fencing height shall be as indicated on the Drawings.
- D. Steel Framework, Round Pipe: Straight, true to section, material, and sizes specified.
1. Type I Pipe: Hot-dipped galvanized steel pipe conforming to ASTM F1083, plain ends, standard weight (schedule 40) with not less than 1.8 oz. zinc per sq. ft. of surface area coated.
 2. Type II Pipe: Manufactured from steel conforming to ASTM A569 or A 446, grade D, cold formed, electric welded with minimum yield strength of 50,000 psi and triple coated with minimum 0.9 oz. zinc per sq. ft. after welding, a chromate conversion coating and a clear polymer overcoat. Corrosion protection on inside surfaces shall protect the metal from corrosion when subjected to the salt spray test of ASTM B117 for 300 hours with the end point of 5 percent Red Rust.
 3. Steel pipe weights: Conform to the following weights per foot.

NPS in <u>inches</u>	Outside Diameter (OD) in <u>inches</u>	Type I	Type II
		<u>Steel</u>	<u>Steel</u>
1	1.315	1.68	1.35
1-1/4	1.660	2.27	1.84
1-1/2	1.900	2.72	2.28
2	2.375	3.65	3.12
2-1/2	2.875	5.79	4.64
3	3.500	7.58	5.71
3-1/2	4.000	9.11	6.56
4	4.500	10.79	----
6	6.625	18.97	----
8	8.625	28.55	----

- E. End, Corner, and Pull Posts:
1. For fabric height up to 6 feet: 2.375-inch OD Type I or II steel pipe, 2-inch square galvanized steel tubing weighing 2.60 lb. per lin. ft., or 3.5-inch by 3.5-inch roll-formed sections weighing 4.85 lb. per lin. ft.
- F. Line or Intermediate Posts:
1. For fabric height up to 6 feet: 1.90-inch OD Type I or II steel pipe, 1.875-inch by 1.625-inch C section weighing 2.28 lb. per lin. ft., or 2.25-inch by 1.70-inch galvanized steel H section weighing 3.26 lb. per lin. ft.
- G. Gate Posts: Provide posts for supporting single gate leaf, or one leaf of a double gate installation, for nominal gate widths as follows:
1. For fabric height up to 6 feet: 2.875-inch OD Type I or II steel pipe, 2.50-inch square galvanized steel tubing weighing 5.10 lbs. per lin. ft., or 3.5-inch by 3.5-inch roll-formed sections weighing 4.85 lbs. per lin. ft.
- H. Post Brace Assembly: Manufacturer's standard adjustable brace at end and gate posts and at both sides of corner and pull posts, with horizontal brace located at mid-height of fabric.
1. Use same material as top rail for brace, and truss to line posts with 3/8-inch diameter rod and adjustable tightener.
 2. Provide manufacturers standard galvanized steel or cast iron or cast aluminum cap for each end.

- I. Top Rail: Manufacturer's longest lengths, with expansion-type couplings, approximately 6-inches long, for each joint. Provide means for attaching top rail securely to each gate corner, pull, and end post.
- J. Bottom and Center Rail: Same material as top rail. Provide manufacturer's standard galvanized steel or cast iron or cast aluminum cap for each end.
- K. Post and Line Caps: Provide weathertight closure cap for each post. Provide line post caps with loop to receive tension wire or top rail.

2.2 CHAIN LINK FENCE FITTINGS AND ACCESSORIES

- A. Tension Wire: 0.177-inch diameter metallic-coated steel marcelled tension wire conforming to ASTM A824 with finish to match fabric.
- B. Tie Wires: 12-gage (0.106-inch diameter) galvanized steel with a minimum of 0.80 oz. per sq. ft. of zinc coating of surface area in accordance with ASTM A641, Class 3 or 9-gage (0.106-inch diameter) aluminum wire alloy 1100-H14 or equal, to match fabric core material.
- C. Tension and Brace Bands: Minimum 3/4-inch wide hot-dip galvanized steel with minimum 1.2 oz. zinc coating per sq. ft. of surface area.
 - 1. Tension Bands: Minimum 14 gage (0.074-inch) thick.
 - 2. Tension and Brace Bands: Minimum 12 gage (0.105-inch) thick.
- D. Concrete: ASTM C94, 3000 psi compressive strength at 28 days, using 3/4-inch maximum size aggregate and complying with general requirements specified on Drawings. Site mixed concrete will be acceptable. Grout shall consist of one part cement to three parts clean, well-graded sand, and the minimum amount of water required to produce a workable mix.
 - 1. Mix materials to obtain concrete with a minimum 28-day compressive strength of 2500 psi.
 - 2. Use at least 4 sacks of cement per cu. yd., 1-inch maximum size aggregate, maximum 3-inch slump, and 2 to 4 percent entrained air.
- E. Other Fencing Accessories: Provide other pressed steel or cast iron accessories and fencing items necessary for a complete installation as required by Project conditions and as recommended by fencing manufacturer.

2.3 GATES

- A. Fabricate perimeter frames of gates from metal and finish to match fence framework. Assemble gate frames by welding. Provide horizontal and vertical members to ensure proper gate operation and attachment of fabric, hardware, and accessories with additional horizontal and vertical members to insure proper gate operation.
- B. Use same fabric as for fence, installed with stretcher bars and bands at vertical edges and at top and bottom edges.
- C. Install diagonal cross bracing consisting of 3/8-inch diameter truss rods with drop forged steel turnbuckles where necessary to insure frame rigidity without sag or twist.
- D. Swinging Gates: Meet the requirements of ASTM F900.
 - 1. Gate Hardware: Meet the requirements of CBC 11B-404 for gates in accessible route.
 - a. Hinges: Manufacturer's standard non-lift-off type, offset to permit 180 degree gate opening.
 - b. Latch: Fork type to permit operation from either side of gate by means of lever handle, and including padlock eye as integral part of latch or weld a long rod to fork to reduce grasping and pressure to operate. Latch shall be mounted 40 inches above finish grade. Comply with California Fire Code (CFC) Article 1208.

- c. Hardware shall comply with local Fire Authority, California Reference Standards code. T-24, Part 12, Section 12-10-202, Item (F), and California Fire Code (CFC) Article 1208.
- d. Double Gates: Provide gate stops set in concrete to engage center drop rod or plunger bar. Include locking device and padlock eyes as integral part of latch, permitting both gate leaves to be locked with single padlock.
- e. Gates in Path of Travel: Hand-activated gate opening hardware, handles, pulls, latches, locks and other operating devices on accessible gates shall have a shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist to operate per CBC Section 11B-404. The lever of lever actuated latches or locks for an accessible gate shall be curved with a return to within ½” of the (face of) gate to prevent catching on clothing or person. California Referenced Standards code. T-24 Part 12, Section 12-10-202, Item (F).
- f. Gates across an exit to a public way or a safe dispersal area shall have panic hardware, in accordance with CBC Section 11B-404.
- g. The bottom 10” of an accessible gate shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16” of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped. The maximum effort to operate the gate shall not exceed 5lbs (22.2 N) per CBC Section 11B-404.2.10.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install fence in compliance with ASTM F567 and chain link fence manufacturer's instructions and recommendations. Do not begin installation and erection before final grading is completed, unless otherwise permitted.
- B. Fence Layout: Lay out fencing in advance of installation, noting locations for posts, gates, operators and accessories applicable to the installation. Space line posts maximum 10 feet o.c., unless otherwise indicated. Straight runs between braced posts shall not exceed 500 feet.
- C. Excavation: Excavate line post holes minimum 10 inch diameter and to a depth of not less than 30 inches for post plus 3 inches below bottom of post. Excavate corner end, pull and gate posts minimum 12 inch diameter and to a depth of not less than 36 inches for post plus 3 inches below bottom of post.
- D. Fastening: Fasten all fence and gate hardware secured in place by peening or welding to allow proper operation of components, but to prevent disassembly of fencing or removal of gates. Fastenings, hardware, and all other connections which have been peened or welded, shall be covered with a heated re-galvanizing alloy.
- E. Brace and frame fence sections in accordance with fencing manufacturer's instructions.
- F. Fabric Installation: Install fabric on security (outside) side of posts. Fasten fabric to tension wires with 11-gage hog rings of same material and finish as fabric wire, spaced maximum 24-inches o.c. Leave approximately 2 inches between finish surface and bottom of selvage.
- G. Gates: Install gates plumb, level and secure. Install as recommended by fence manufacturer. Adjust hardware for smooth operation and lubricate as required.
- H. Adjust fabric for rigid installation. Tighten hardware, fasteners, and accessories. Bend ends of tie wires to preclude snagging.
- I. Remove excess and waste materials from Project site.

END OF SECTION

SECTION 32 31 19
ORNAMENTAL METAL FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Ornamental steel fences.

1.02 RELATED REQUIREMENTS

- A. Section 03 30 01 - Cast-in-Place Concrete System.
- B. Section 31 23 16 - Excavation.

1.03 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process; 2010.
- B. ASTM F2408 - Ornamental Fences Employing Galvanized Steel Tubular Pickets; 2009.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Preinstallation Meeting: Conduct a preinstallation meeting one week prior to start of work of this section; require attendance by all affected installers.

1.05 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings:
 - 1. Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
 - 2. Foundation details, concrete design mix and reinforcing schedule for anti-ram barrier system.
- D. Installer's Qualification Statement.
- E. Manufacturer's Warranty.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.
- B. Installer Qualifications: Experienced with type of construction involved and materials and techniques specified.
- C. Regulatory Requirements: Provide fences and gates meeting life safety and accessibility requirements of California Building Code (CBC) Title 24, Part 2, Chapters 10 and 11B; and ADA Accessibility Guidelines for Buildings and Facilities, per latest amendments.
 - 1. Gates that are part of the accessible route shall meet all the requirements of an accessible door in compliance with CBC Section 11B-404 and 11B-206.5.
 - 2. Gate Hardware: Meet the requirements of CBC 11B-206.5 and 11B-404.2.9.
 - a. Latch: Latch, including padlock eye as integral part of latch, mounted 40 inches above finish grade. Comply with California Fire Code.
 - b. Hardware shall comply with local Fire Authority, California Building Code (CBC) Title

24, Section 1008.2, and California Fire Code (CFC) Section 503.5.2.

c. The lever of lever actuated latches or locks for an accessible gate shall be curved with a return to within 1/2 inch of the (face of) gate to prevent catching on the clothing or persons. California Referenced Standards Code T-24 Part 12, Section 12-10-202, Item (F).

d. Hand activated opening hardware, handles, pulls, latches, locks, and other operating devices for and accessible gate shall have a shape that is easy to grasp with one

- D. Structural Design: Fence, gates and all components, including guide frames and hardware, shall be designed and constructed to withstand 95 MPH wind loading. In addition, design to support minimum lateral force of 50 pounds per lineal foot uniform load and 200 pounds at any single point without permanent set or damage; ASTM E935.
- E. Fabricator's Qualifications: Fabricator of light structural steel framing members and other miscellaneous metal fabrications of structural character shall have a minimum 5 years experience fabricating similar fences and gates and shall be approved by the Building Official in accordance with applicable Code provisions.
- F. Welder's Qualifications: Welding shall be performed by certified welders qualified in accordance with procedures specified in applicable referenced AWS standard, using materials, procedures and equipment of the type required for the Work. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.
- G. Coordination: Provide templates and sleeves for incorporation of embedded items into the work specified elsewhere herein or in other Sections.
- H. Field-Verified Dimensions: Prior to fabrication, field verify dimensions and details of construction. Immediately report variances in writing to Architect.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Store materials in a manner to ensure proper ventilation and drainage. Protect against damage, weather, vandalism and theft.
- B. Delivery, Storage and Handling of Galvalumed Products:
 - 1. Stack and bundle during transport and store to allow air flow between galvanized surfaces.
 - 2. Load for transport to permit continuous drainage should wetting occur.
 - 3. Do not rest galvalumed products on cinders or clinkers.
 - 4. Material showing evidence of damage will be rejected.

1.08 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Finish: 10 years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Decorative Metal Fences:
 - 1. Ameristar Fence Products, Inc: www.ameristarfence.com.
 - 2. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 FENCES

- A. Fences: Complete factory-fabricated system of posts and panels, accessories, fittings, and fasteners; finished with electrodeposition coating, and having the following performance characteristics:
 - 1. Capable of resisting vertical load, horizontal load and infill performance requirements for fence categories defined in ASTM F2408.
- B. Galvalume Finish: Hot-dipped coated after welding with 55 percent aluminum-zinc alloy conforming to ASTM A924 and ASTM A792 AZ-50, Grade 50, 50 ounce per square foot.

1. Finishing: Galvalumed steel components washed and pre-treated with zinc phosphatizer and non-chromate sealer.
 2. Factory Finish: Coat with thermoset glycidal-polyester applied electrostatically (powder-coated) for dry film thickness of 2-4 mils.
 3. Color as selected by Architect from manufacturer's standard colors.
- C. Steel: ASTM A653/A653M; yield strength 45,000 psi, minimum.
1. Hot-dip galvanized; A 653/A653M, G60.
 2. 62 percent recycled steel, minimum.

2.03 WELDED STEEL FENCE

- A. Provide fence meeting requirements for Industrial class as defined by ASTM F2408.
- B. Fence Panels: Fusion welded; indicated height in feet high by indicated height in feet long.
1. Panel Style: Two rail.
 2. Attach panels to posts with manufacturer's standard panel brackets.
- C. Posts:
1. Size: 2 x 3 inches square by minimum 12 gage, with manufacturer's standard cap.
 2. Post Cap: Flush plate.
- D. Rails: Manufacturer's standard, double-wall steel channel 1-3/4 inch square by 12 gage with pre-punched picket holes.
1. Picket Retaining Rods: 0.125 inch galvanized steel.
 2. Picket-to-Rail Intersection Seals: PVC grommets.
- E. Pickets: Steel tube.
1. Spacing: 3-3/4 inch clear.
 2. Size: 1 inch square by 18 gage.
 3. Style: Pickets with finial extend above top rail.
 4. Finial: Spear point.
- F. Flexibility: Capable of following variable slope of up to 1:2.

2.04 MECHANICALLY FASTENED STEEL FENCE

- A. Provide fence meeting requirements for Industrial class as defined by ASTM F2408.
- B. Fence Panels: Mechanically fastened with internal reinforcement and tamperproof fasteners; 12 feet high by 6 feet long.
1. Panel Style: Two rail.
 2. Panel Strength: Capable of supporting 600 pound load applied at midspan without deflection.
 3. Attach panels to posts with manufacturer's standard panel brackets.
- C. Posts:
1. Size: 4 inches square by 12 gage, with manufacturer's standard cap.
 2. Post Cap: Ball.
- D. Rails: Manufacturer's standard, double-wall steel channel; 1-3/4 inch square by 14 gage with pre-punched picket holes.
1. Picket Retaining Rods: 0.125 inch galvanized steel.
 2. Picket-to-Rail Intersection Seals: PVC grommets.
- E. Pickets: Steel tube.
1. Spacing: 4.175 inch on center.
 2. Size: 1 inch square by 14 gage
 3. Style: Pickets with finial extend above top rail.
 4. Finial: Spear point.
- F. Flexibility: Capable of following variable slope of up to 1:4.

2.05 HINGED STEEL GATES

- A. Steel Gate: Fabricated steel gate with minimum 2-inch by 3-inch steel tube frame with 3/4" steel tube pickets, unless otherwise indicated or detailed on Drawings.

2.06 ROLLING STEEL GATES

- A. Steel Gate: Fabricated rolling steel gate with 2-inch by 3-inch steel tube frame, 2-inch by 4-inch bottom rail and 3/4-inch by 3/4-inch, 12 gage steel tube pickets, unless otherwise indicated or detailed on Drawings.
- B. Guide Frame: Fabricated guide frame for upper guide roller support. 2-inch by 2-inch steel tube columns with 1/4-inch by 2-inch wide tie brace at top, as indicated or detailed on Drawings. Set posts in concrete as specified in Section 03 30 01 - Cast In Place Concrete System and anchor to adjacent wall.
- C. Gate Hardware and Accessories: Provide for fully functional heavy duty commercial or industrial use rolling gate. Provide properly sized and positioned head guide rollers and bottom rollers for gate size, "V" track cast into concrete paving, 6-inch solid steel, heat treated, v-groove wheels with sealed ball bearings as manufactured by Elite Access Systems, Orange, CA, or approved equal, and jamb or receiver members as required to receive gate in closed position. Provide padlock hasp.

2.07 GATE HARDWARE, GENERAL

- A. Hardware: Provide heavy duty ball bearing non-lift-off type and 180 degree opening hinges, latches, drop bolts, and other hardware required.

2.08 FABRICATION

- A. Metal Fences, Gates and Components: Fabricated of galvalumed steel construction, all welded with welds ground smooth. Provide steel anchors for securing into adjoining construction. Weld anchors to frames not more than 12 inches from both top and bottom and space anchors not more than 24 inches apart.
- B. Swinging Gates: Fabricate gates of galvalumed steel framework with infill panels as specified herein. Provide with latch of type to permit operation from either side of gate by means of lever handles, and incorporating a padlock eye as integral part of latch. Latch shall be mounted 40 inches above finish grade. Comply with California Fire Code (CFC) Article 1208.
 - 1. On gates over 5 Install diagonal cross bracing consisting of 3/8-inch diameter truss rods with drop forged steel turnbuckles where necessary to insure frame rigidity without sag or twist.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Field Inspection of Fabricated Products: Prior to installation, inspect products for damage and verify markings and dimensions against reviewed submittals.
- D. Coordination: Coordinate fence and gate Work with Work specified in other Sections so that related Work shall be accurately and properly joined. Furnish templates for exact location of items to be embedded in concrete or masonry.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Obtain Architect's review prior to site cutting or making adjustments not indicated on Drawings and reviewed shop drawings.
- C. Clean and strip site primed steel items to bare metal where site welding is necessary.

- D. Make provision for erection loads with temporary bracing. Keep work in alignment.
- E. Provide items required to be cast into concrete with setting templates. Coordinate placement with Work specified in Section 03 30 01 - Cast In Place Concrete.
- F. Clean and prime field welds. Touch up galvalumed steel with cold repair compound.

3.03 INSTALLATION

- A. Installation, General: Install items plumb and level, accurately fitted, free from distortion or defects.
- B. Install in accordance with manufacturer's instructions.
- C. Set fence posts in accordance with the manufacturer recommended spacing.
- D. Perform field welding in accordance with AWS D1.1. All welds ground smooth.
- E. When cutting rails immediately seal the exposed surfaces by:
 - 1. Removing all metal shavings from cut area.
 - 2. Apply zinc-rich primer to thoroughly cover cut edge and drilled hole; allow to dry.
 - 3. Apply 2 coats of custom finish spray paint matching fence color.
 - 4. Failure to seal exposed surfaces in accordance with manufacturer's instructions will negate manufacturer's warranty.
- F. Space gate posts according to the manufacturers' drawings, dependent on standard out-to-out gate leaf dimensions and gate hardware selected.
 - 1. Base type and quantity of gate hinges o the application; weight, height, and number of gate cycles.
 - 2. Identify the necessary hardware required for the application on the manufacturer's gate drawings.
 - 3. Provide gate hardware by the manufacturer of the gate and install per manufacturer's recommendations
- G. Install posts in concrete by means of pipe sleeve inserts set and anchored in concrete. Fill annular space between pipe posts and sleeve inserts with grouting compound.

3.04 ERECTION TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch.
- B. Maximum Offset From Indicated Position: 1 inch.
- C. Minimum distance from property line: 6 inches.

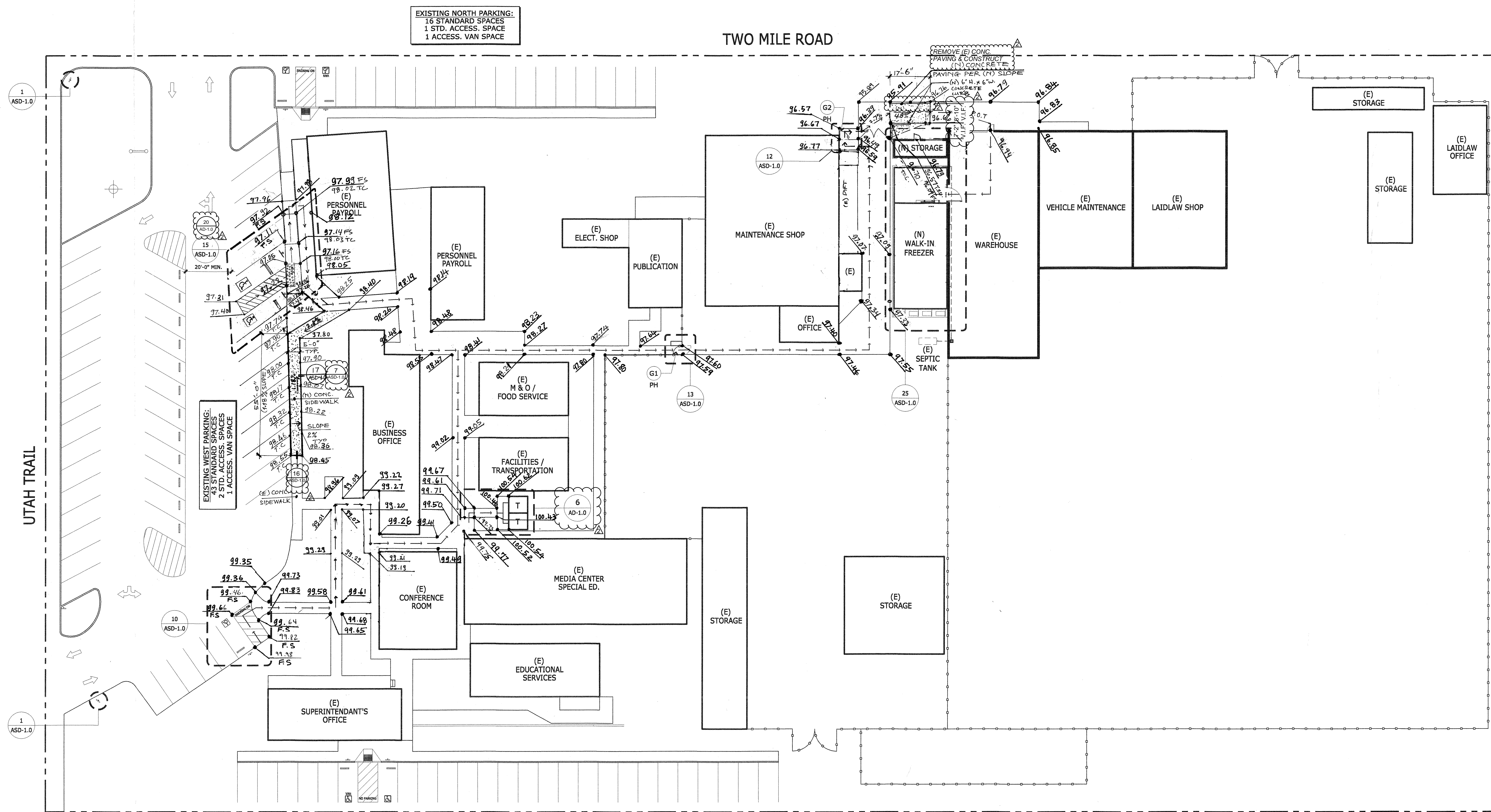
3.05 CLEANING

- A. Leave immediate work area neat at end of each work day.
- B. Clean jobsite of excess materials; scatter excess material from post hole excavations uniformly away from posts. Remove excess material if required.
- C. Clean fence with mild household detergent and clean water rinse well. .
- D. Remove mortar from exposed posts and other fencing material using a 10 percent solution of muriatic acid followed immediately by several rinses with clean water.
- E. Cleaning: Perform initial cleaning immediately after completion of installation. Prepare surfaces for finish painting as specified in Section 09 91 23 - Exterior Painting when prefinishing not specified.
- F. Touch up scratched surfaces using materials recommended by manufacturer. Match touchup paint color to fence finish.
 - 1. Galvaluming Touch-Up: Touch up galvalumed surfaces immediately after installation, including field welding. Prepare surface and apply cold repair compound in compliance with the manufacturer's instructions and recommendations.
 - 2. Primer Paint Touch-Up: Touch up shop paint immediately after erection. Use products as specified in Section 09 91 23 - Exterior Painting.
 - a. Clean field welds, bolted joints, and areas where primer is damaged.
 - b. Paint with material used for shop painting, minimum 3 mils dry film thickness.

3.06 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair, or replace damaged products before Substantial Completion.

END OF SECTION



EXISTING NORTH PARKING:
16 STANDARD SPACES
1 STD. ACCESS. SPACE
1 ACCESS. VAN SPACE

TWO MILE ROAD

UTAH TRAIL

EXISTING WEST PARKING:
23 STANDARD SPACES
2 STD. ACCESS. SPACES
1 ACCESS. VAN SPACE

EXISTING SOUTH PARKING:
24 STANDARD SPACES
1 STD. ACCESS. SPACE
1 ACCESS. VAN SPACE



OVERALL SITE PLAN 1"=20'-0" 1

GATE SCHEDULE						
GATE (FENCE HEIGHT)	GATE LEAF WIDTH	GATE POST SIZE		FOOTING SIZE		
		DIA. (O.D.)	NOMINAL (I.D.)	DIA.	DEPTH	
4'-0"	4'-0" OR LESS	2.375"	2"	FENCE HT. +2'-2"	10"	2'-6"
	OVER 4'-0" TO 10'-0"	2.875"	2.5"	FENCE HT. +3'-1"	12"	3'-0"
	OVER 10'-0" TO 18'-0"	4.0"	3.5"	FENCE HT. +3'-1"	14"	3'-0"
7'-0"	4'-0" OR LESS	3.5"	3.068"	FENCE HT. +3'-1"	16"	4'-0"
	OVER 4'-0" TO 10'-0"	4.0"	3.5"	FENCE HT. +3'-1"	16"	4'-0"
	OVER 10'-0" TO 18'-0"	6.425"	6"	FENCE HT. +3'-2"	16"	4'-0"

FENCE SCHEDULE												
FENCE HEIGHT	TERMINAL POST SIZE		LINE POST SIZE		FOOTING SIZE		REQUIRED RAIL	REQUIRED BRACING	FABRIC TENSION BANDS	TERM. POST		
	DIA. (O.D.)	NOMINAL (I.D.)	DIA. (O.D.)	NOMINAL (I.D.)	DIA. (O.D.)	DEPTH						
4'-0"	2.875"	2.5"	6'-1"	2.375"	2"	5'-7"	10"	8"	2'-6"	NO	NO	3
6'-0"	2.875"	2.5"	8'-7"	2.375"	2"	8'-1"	10"	8"	2'-6"	NO	NO	3
7'-0"	3.5"	3"	9'-10"	2.875"	2.5"	9'-4"	12"	10"	2'-9"	NO	YES	6
8'-0"	3.5"	3"	11'-1"	2.875"	2.5"	10'-7"	12"	10"	3'-0"	NO	YES	7
10'-0"	4.5"	4"	13'-7"	3.5"	3"	13'-1"	16"	12"	3'-6"	NO	YES	9
12'-0"	4.5"	4"	16'-1"	3.5"	3"	15'-7"	16"	12"	4'-0"	YES	YES	10

NO.	SIZE	MATERIAL	FINISH	DETAILS	HDW GROUP	SIGNAGE	PANIC	NOTES
G1	(E) 4'-0" X 6'-0"	(E) CL	(E) PFD	18/ASD-1.0	1	-	YES	2
G2	4'-0" X 6'-0"	CL	PFD	18/ASD-1.0	1	-	YES	1

GENERAL NOTES:

- NEW PANIC HARDWARE AND LEVER SET
- EXISTING GATE, PROVIDE NEW HARDWARE SET

HARDWARE SET 1:

SINGLE GATE HARDWARE SETS:

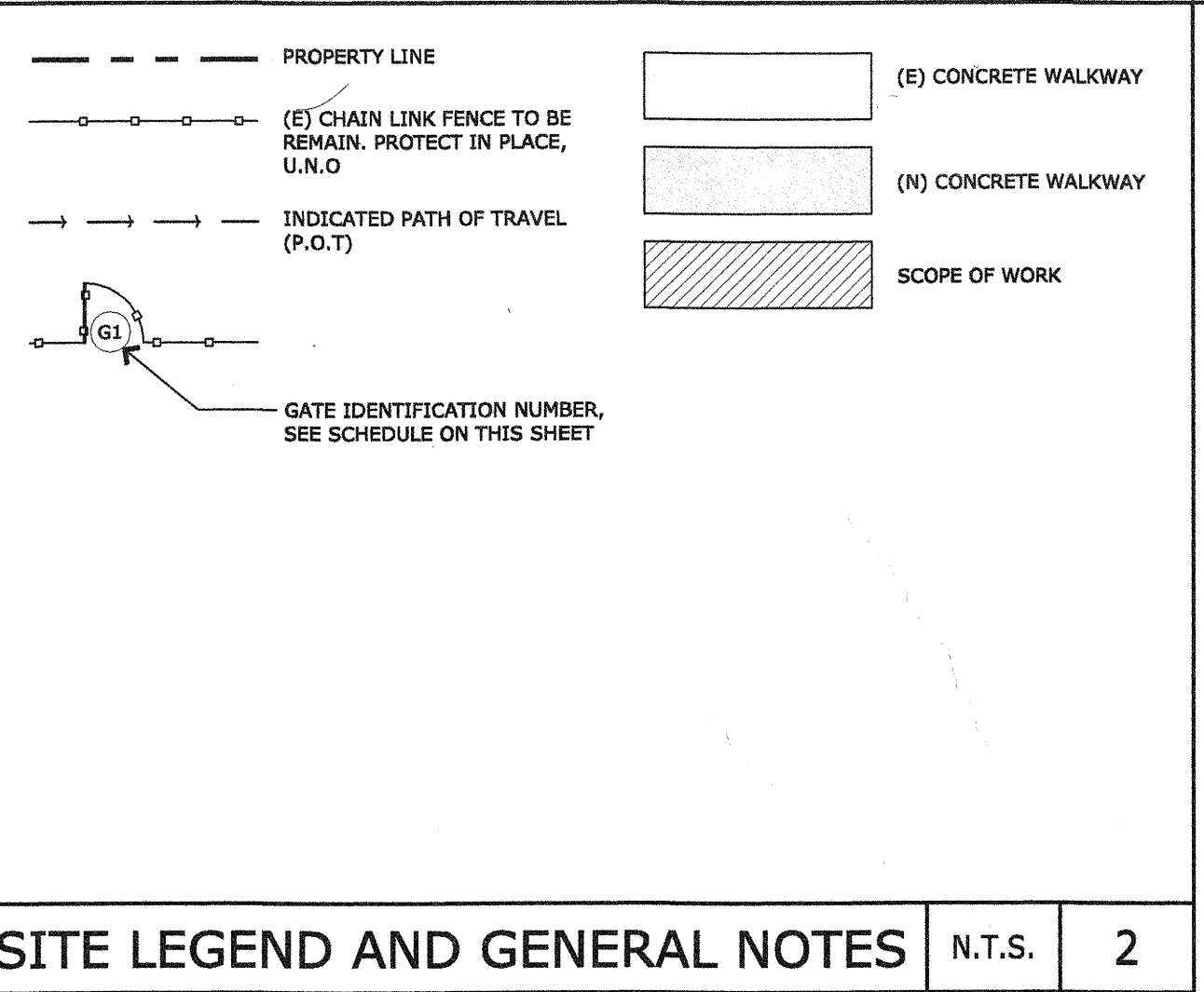
FACH SINGLE GATE WITH AN EXIT DEVICE TO HAVE:	600	GDN
1 GATE HINGE	2050-100	626
1 EXIT DEVICE	AX-KP98NL-OP X PA X 110NL	626
1 1/2" RIM CYLINDER	20-0571CX	626
1 1/2" CORE CYLINDER	23-030	626
1 ARMOR COLLAR	K-24	626
1 ANTI VANDAL PULL	VBS14H-NL	630
1 GATE BOX	K-EN1517S	630

BALANCE OF HARDWARE BY GATE MANUFACTURER

1. PATH OF TRAVEL (P.O.T.) AS INDICATED IS A BARRIER FREE ACCESS ROUTE WITHOUT ANY ABRUPT VERTICAL CHANGES EXCEEDING 1/2" REVEALED AT 1:2 MAXIMUM SLOPE, EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4" VERTICAL AND IS AT LEAST 48" WIDE. SURFACE IS SLIP RESISTANT, STABLE, FIRM AND SMOOTH. CROSS-SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVEL IS LESS THAN 5% UNLESS OTHERWISE INDICATED. (P.O.T) SHALL BE MAINTAINED FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT TO VERIFY THAT ALL BARRIERS IN THE PATH OF TRAVEL HAVE BEEN REMOVED OR WILL BE REMOVED UNDER THIS PROJECT, AND PATH OF TRAVEL COMPLIES WITH CBC 11B-303 & 11B-304.

2. DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT: THE P.O.T. IDENTIFIED IN THESE CONSTRUCTION DOCUMENTS IS COMPLIANT WITH THE CURRENT APPLICABLE CALIFORNIA BUILDING CODE ACCESSIBILITY PROVISIONS FOR PATH OF TRAVEL REQUIREMENTS FOR ALTERATIONS, ADDITIONS AND STRUCTURAL REPAIRS. AS PART OF THE DESIGN OF THIS PROJECT, THE P.O.T. WAS EXAMINED AND ANY ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WERE DETERMINED TO BE NON-COMPLIANT 1.) HAVE BEEN IDENTIFIED AND 2.) THE CORRECTIVE WORK NECESSARY TO BRING THEM INTO COMPLIANCE HAS BEEN INCLUDED WITHIN THE SCOPE OF THIS PROJECT'S WORK THROUGH DETAILS, DRAWINGS AND SPECIFICATIONS INCORPORATED INTO THESE CONSTRUCTION DOCUMENTS. ANY NON-COMPLIANT ELEMENTS, COMPONENTS OR PORTIONS OF THE P.O.T. THAT WILL NOT BE CORRECTED BY THIS PROJECT BASED ON VALUATION THRESHOLD LIMITATIONS OR A FINDING OF UNREASONABLE HARDSHIP ARE SO INDICATED IN THESE CONSTRUCTION DOCUMENTS. DURING CONSTRUCTION, IF P.O.T. ITEMS WITHIN THE SCOPE OF THE PROJECT REPRESENTED AS CODE COMPLIANT ARE FOUND TO BE NON-COMPLIANT BEYOND REASONABLE CONSTRUCTION TOLERANCES, THEY SHALL BE BROUGHT INTO COMPLIANCE WITH THE CBC AS A PART OF THIS PROJECT BY MEANS OF A CONSTRUCTION CHANGE DOCUMENT.

3. THE EXISTING SITE LANDSCAPING, UTILITIES ON SITE, AC PAVING, PARKING LOT STRIPING, PARKING LOT LIGHTING, AND TRUNCATED DOMES ARE TO REMAIN.

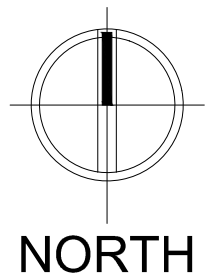
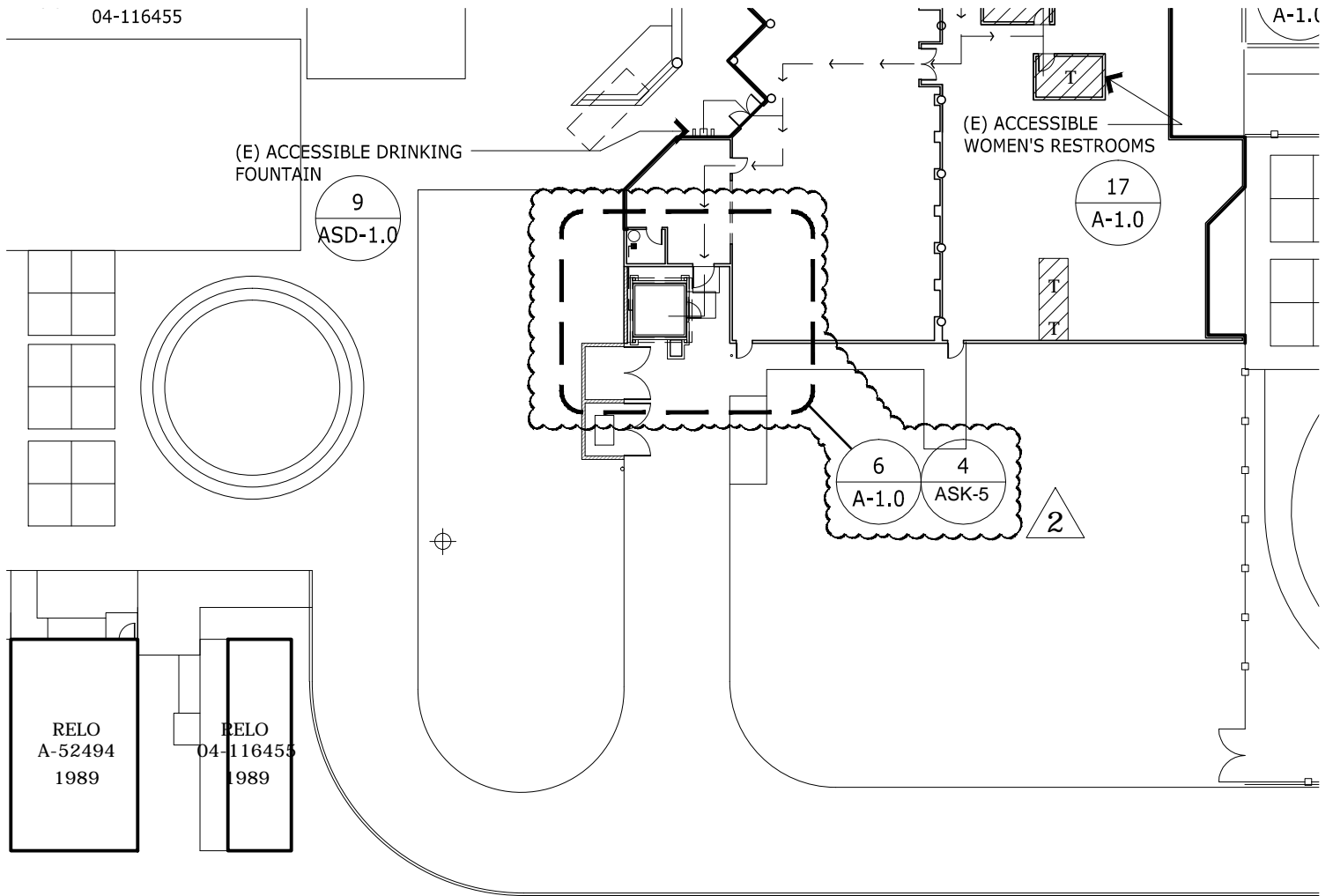


RUHNAU CLARKE ARCHITECTS

WALK-IN FREEZER INSTALLATION
MORONGO UNIFIED SCHOOL DISTRICT OFFICE
5715 UTAH TRAIL, 29 PALMS, CA 92277
MORONGO UNIFIED SCHOOL DISTRICT

PROJECT No.: 1-49-80
07/21/2018 5:02 PM

DRAWN BY: _____	CHECKED BY: _____
ISSUE No.: 1 DATE: 08/13/22 DESCRIPTION: 01A SUBMITTAL	REVISION No.: _____ DATE: _____ DESCRIPTION: _____
ISSUE No.: 2 DATE: 08/13/22 DESCRIPTION: 02A SUBMITTAL	REVISION No.: _____ DATE: _____ DESCRIPTION: _____
ISSUE No.: 3 DATE: 08/13/22 DESCRIPTION: 03A SUBMITTAL	REVISION No.: _____ DATE: _____ DESCRIPTION: _____
ISSUE No.: 4 DATE: 08/13/22 DESCRIPTION: 04A SUBMITTAL	REVISION No.: _____ DATE: _____ DESCRIPTION: _____

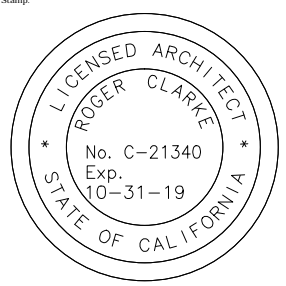


OVERALL SITE PLAN | 1/32"=1'-0" | 1

Description: OVERALL SITE PLAN / AS-1.0 Scale: 1/32" = 1'-0"

FRIENDLY HILLS ELEMENTARY SCHOOL
 WALK-IN FREEZER INSTALLATION
 MORONGO SCHOOL DISTRICT

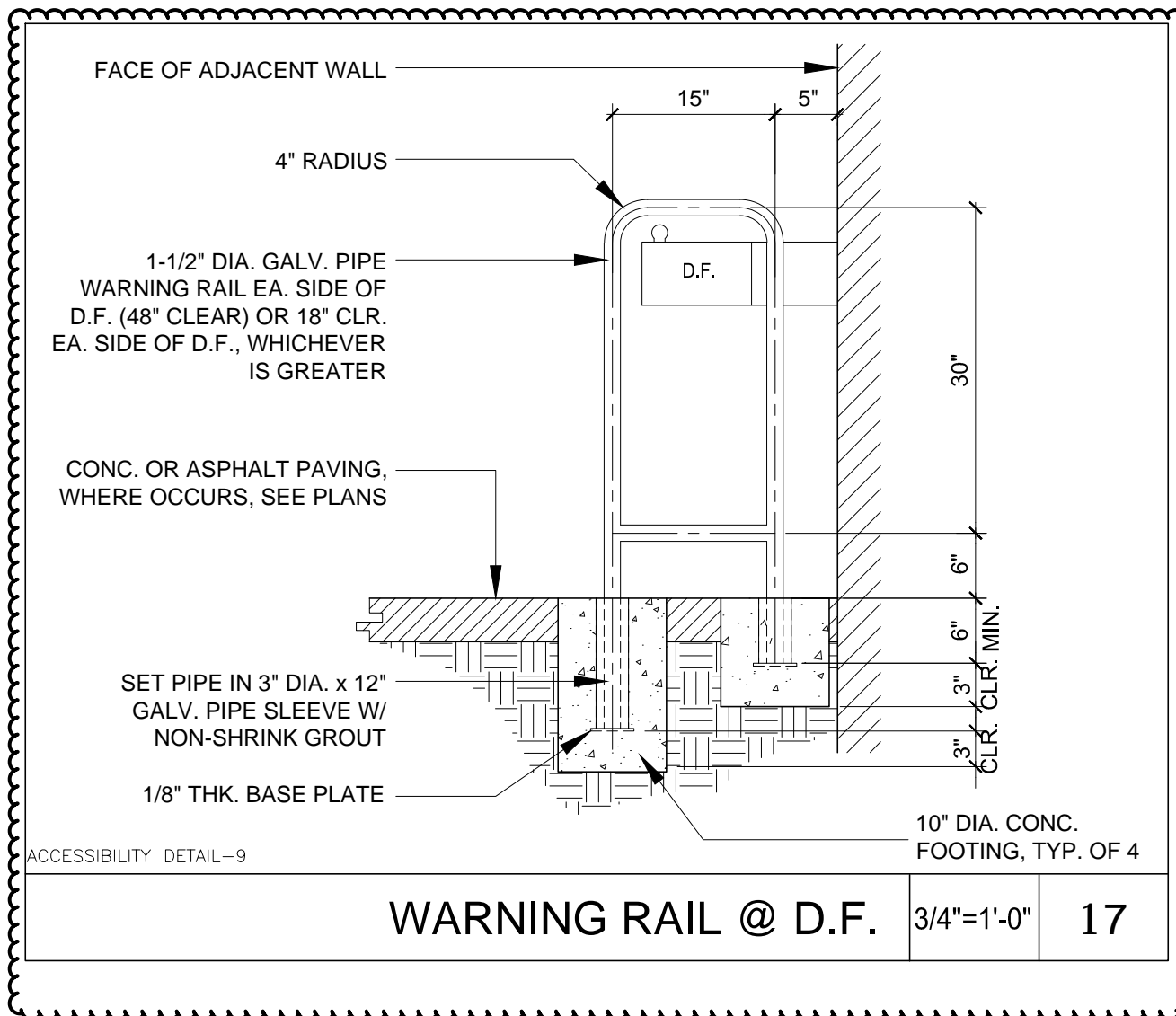
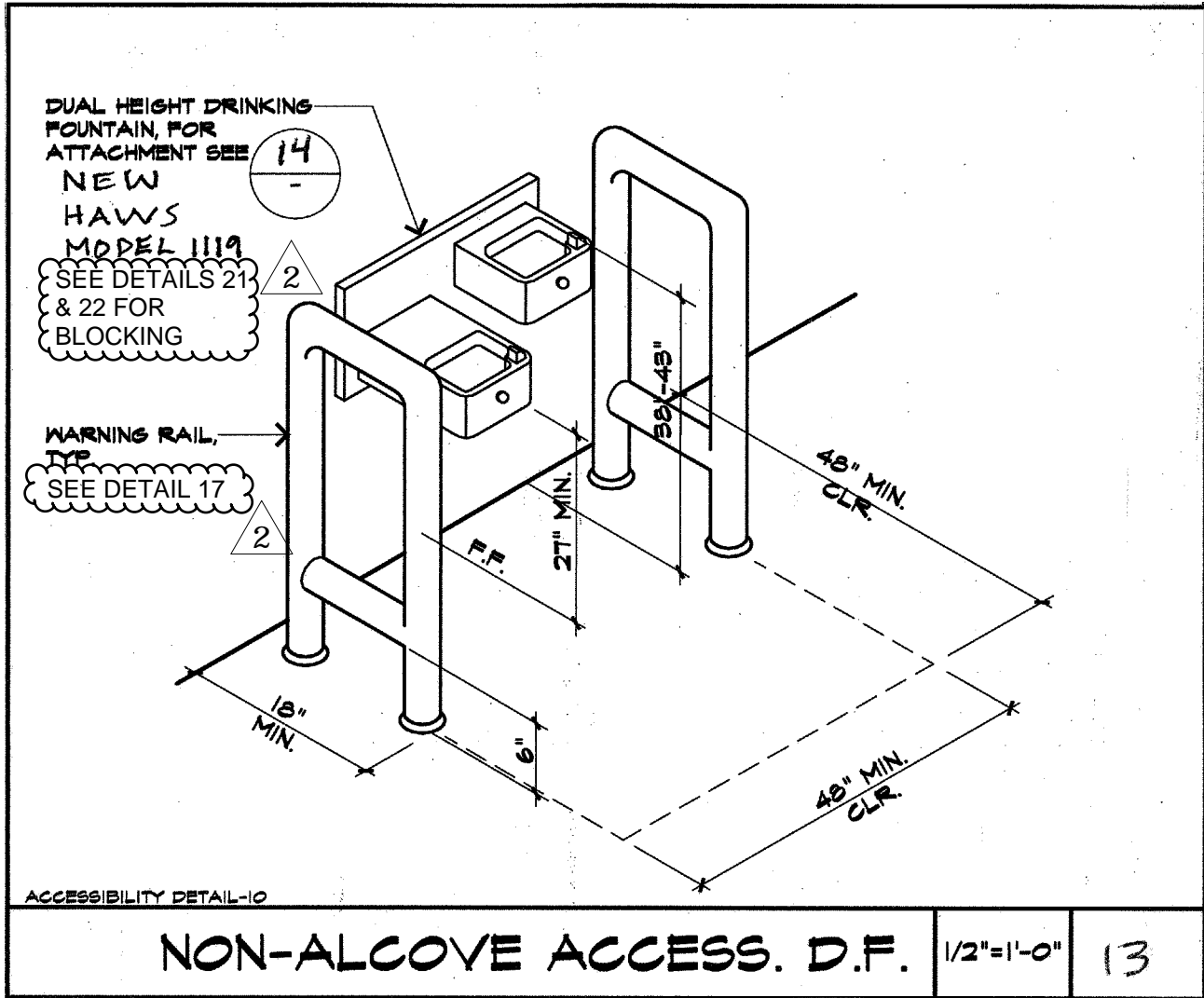
DSA APN #: _____
 DSA File #: **36-42**
 Date: **05-24-2019**
 Project #: **1-49-80**
 Sheet #: _____



5/24/2019 2:30 PM
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ASK-1



2

DESCRIPTION: SITE DETAILS / ASD-1.0

SCALE: ON DETAIL

FRIENDLY HILLS ELEMENTARY SCHOOL

MORONGO SCHOOL DISTRICT

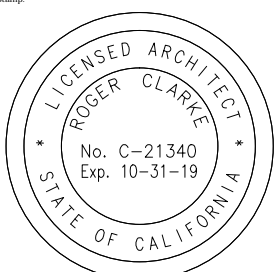
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Date:
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Sheet #:

ASK-2



NOTES:

- EXISTING WOOD OR METAL STUD WALL
- CUT AND REMOVE EXISTING PLASTER ON EXISTING WALL TO INSTALL NEW DRINKING FOUNTAIN.
- CAREFULLY CUT THE CONSTRUCTION PAPER AND METAL LATH TO PERMIT TUCK UNDER OF NEW CONSTRUCTION PAPER AND INSTALLATION OF NEW METAL LATH WHERE REQUIRED.
- BEND UP A PORTION OF THE CONSTRUCTION PAPER AND LATH TO INSTALL NEW CONSTRUCTION PAPER AND LATH.
- INSTALL NEW CONSTRUCTION PAPER. TUCK UNDER EXISTING PAPER AT HEAD AND LAP AT SIDES AND SILL TO SHED WATER. PROVIDE CONTINUOUS TAPE WITH WATER TIGHT SEAL AROUND ALL REPAIRED PAPER AREAS.
- BEND DOWN UPPER PORTION OF THE EXISTING CONSTRUCTION PAPER AND LATH SEE ITEMS 4 AND 5. PROVIDE 18 GAUGE TIE WIRE TO EXISTING LATH FOR CONTINUOUS HOLD OF ALL REPAIRED LATH AREAS.
- PATCH BACK EXTERIOR PLASTER. TEXTURE AND COLOR TO MATCH EXISTING ADJACENT PLASTER. PAINT ENTIRE WALL SCREED TO SOFFIT AND CORNER TO CORNER.

PLASTER PATCH	3"=1'-0"	20
----------------------	-----------------	-----------

Description: **SITE DETAILS / ASD-1.0** Scale: **SEE DETAIL**

FRIENDLY HILLS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

5/24/2019 3:05 PM

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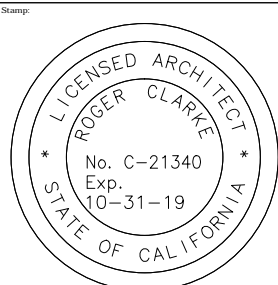
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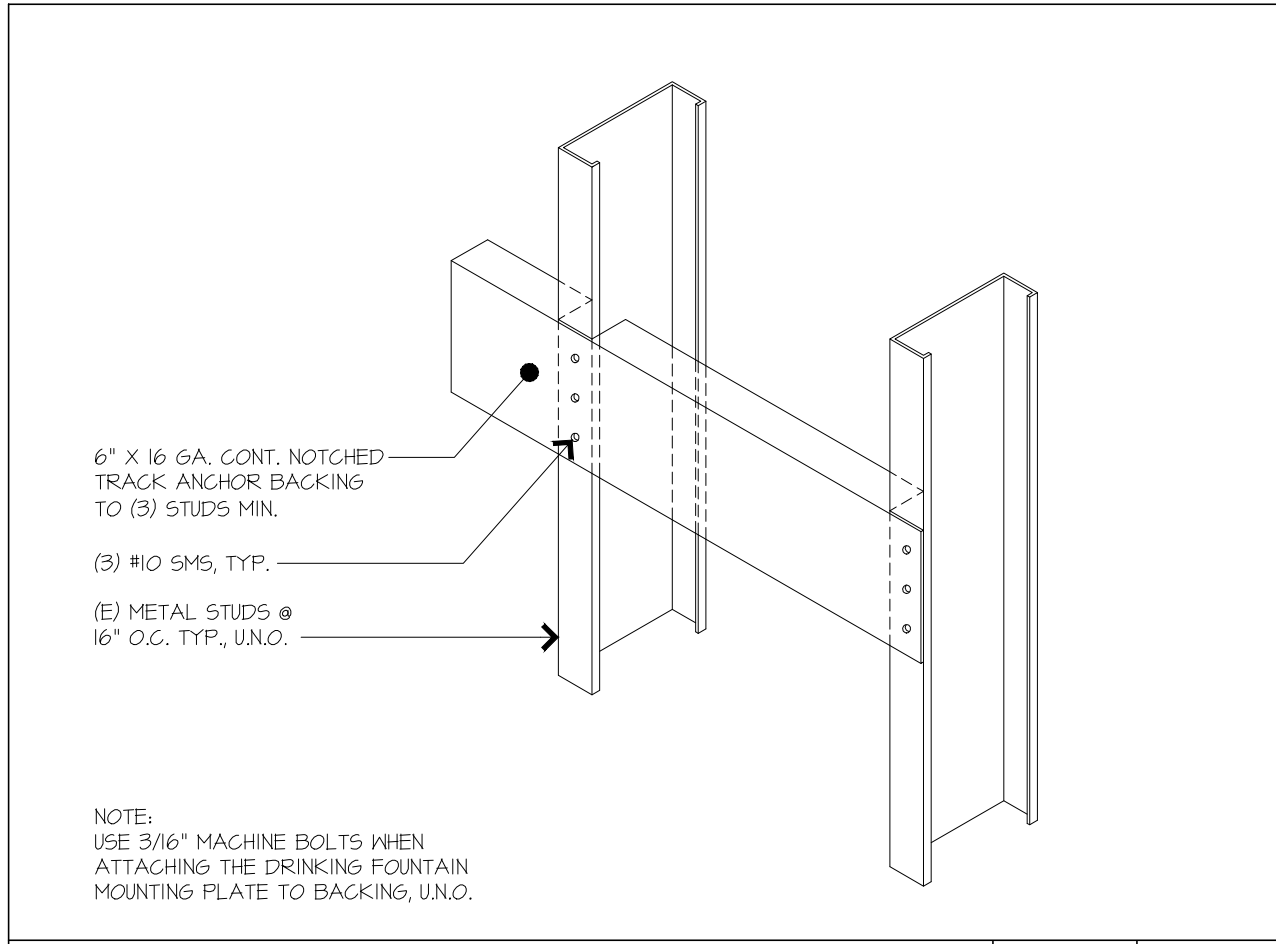
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Date: _____

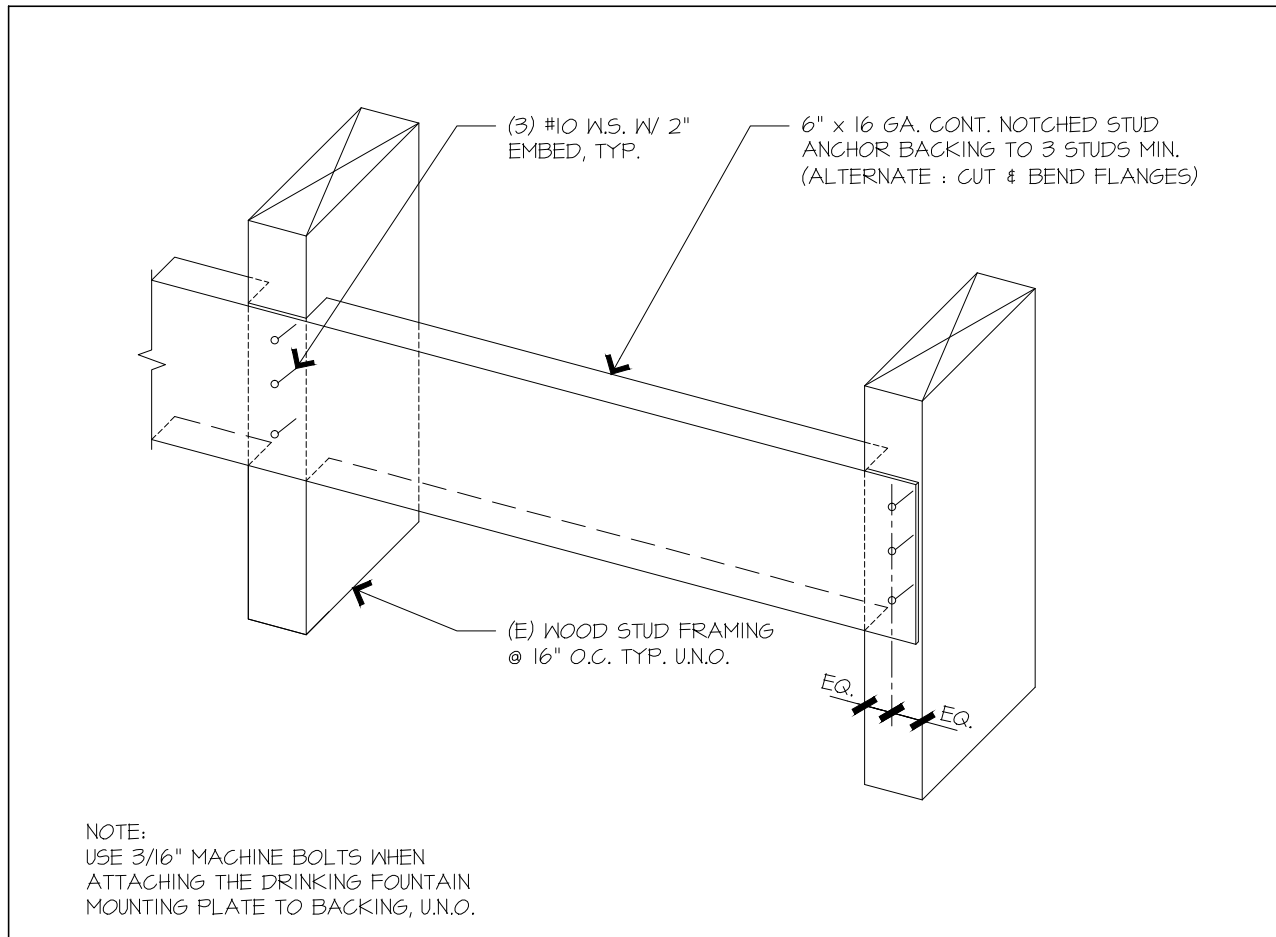
Project #: **1-49-80**

Sheet: **ASK-3**



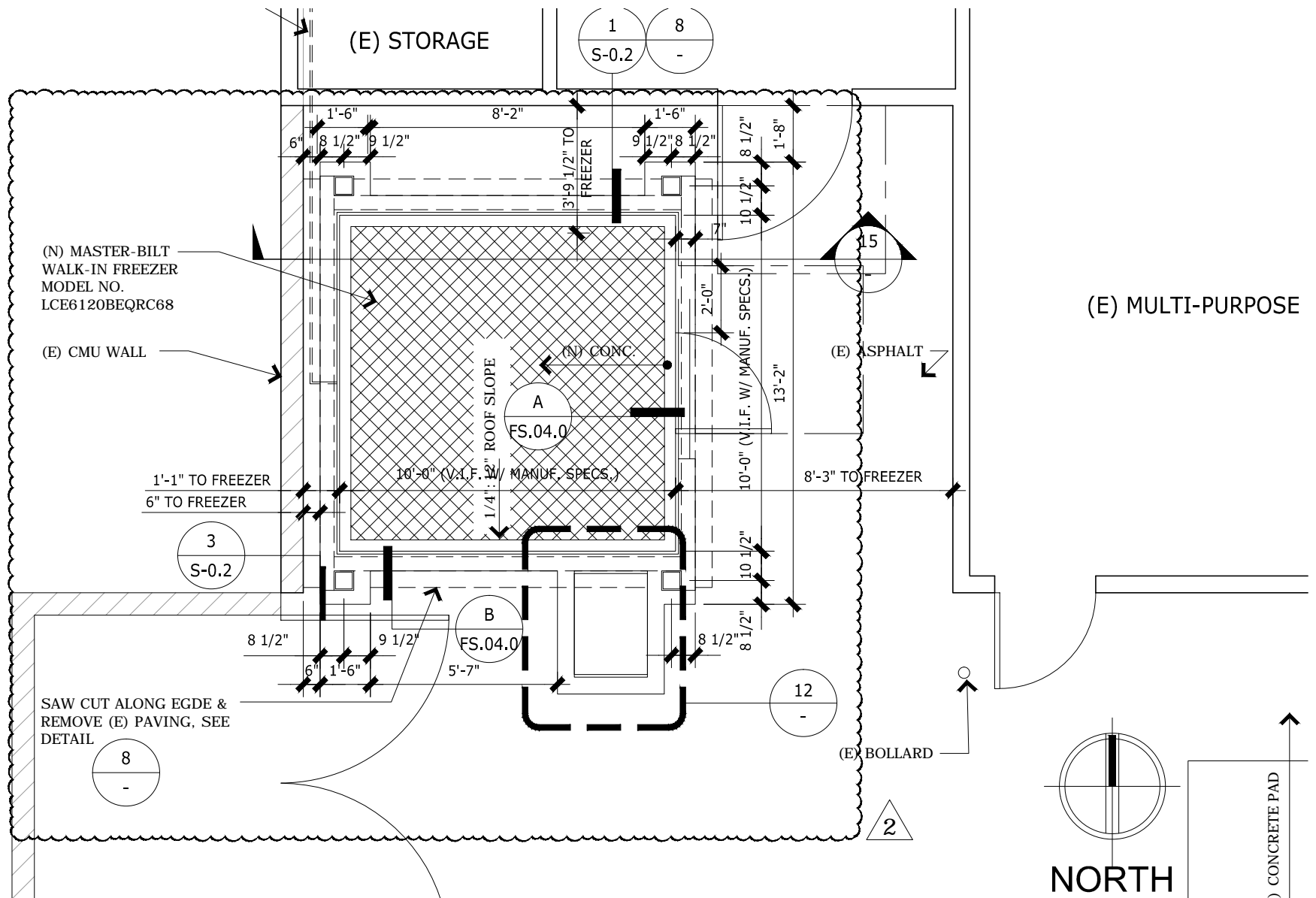


(N) BACKING AT (E) METAL STUD WALL | 1-1/2"=1'-0" | 21

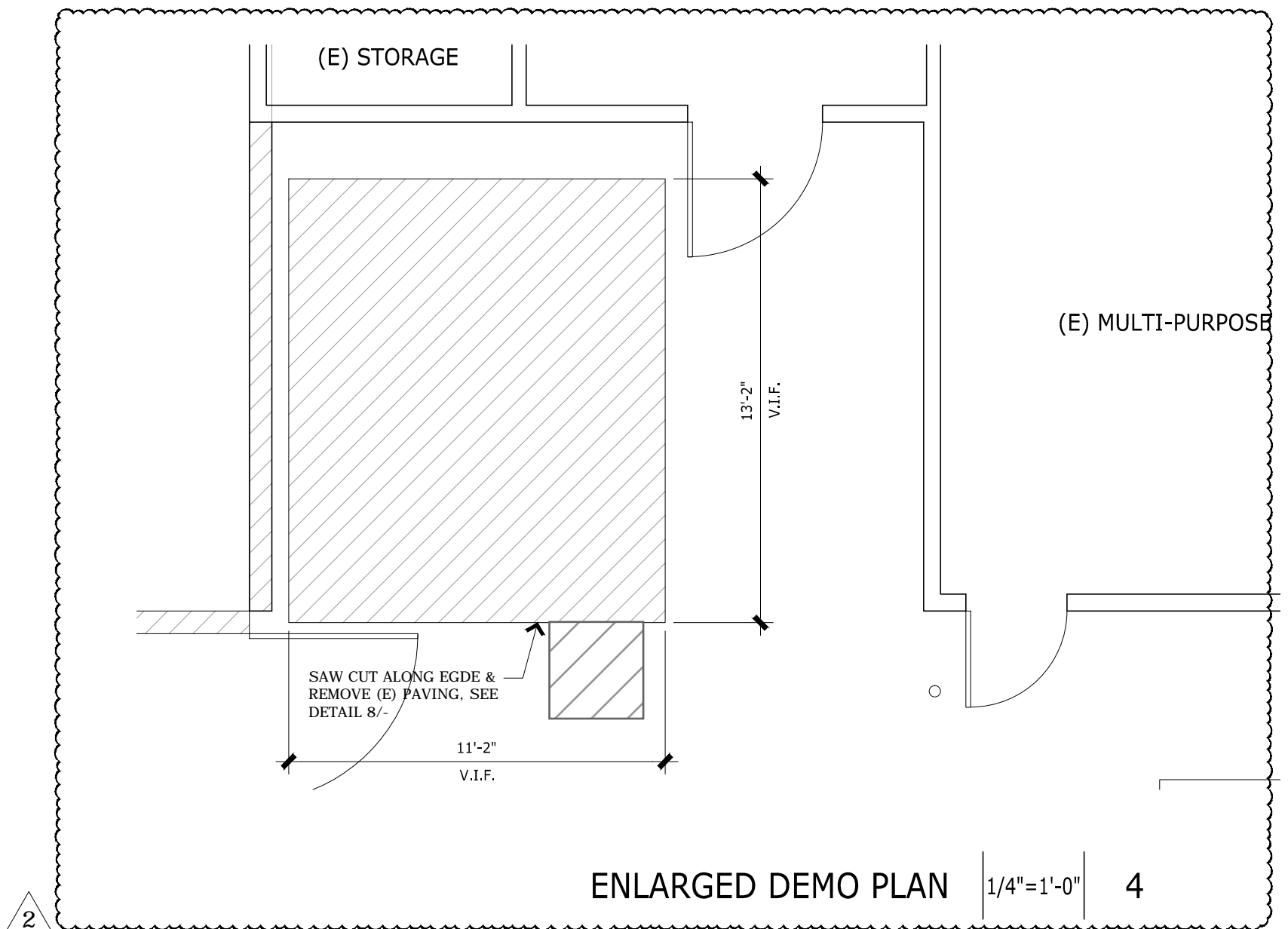


(N) BACKING AT (E) WOOD STUD WALL | 1/2"=1'-0" | 22

2



ENLARGED SITE PLAN | 1/4"=1'-0" | 6



ENLARGED DEMO PLAN | 1/4"=1'-0" | 4

DESCRIPTION: SITE DETAILS / A-1.0

SCALE: ON DETAIL

FRIENDLY HILLS ELEMENTARY SCHOOL

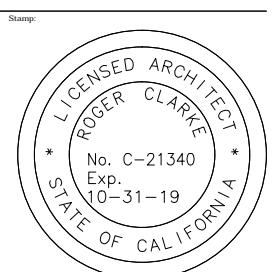
WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

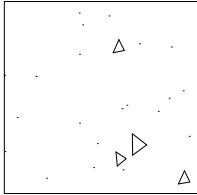
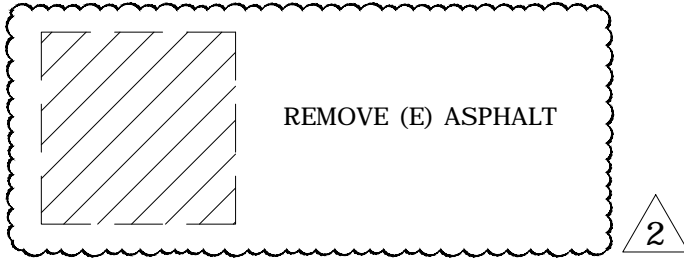
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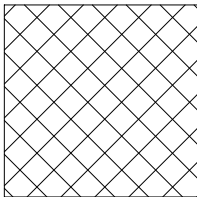
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DSA File #: 36-42
Date: 04-25-2019
Project #: 1-49-80
Sheet #: **ASK-5**





(N) DEPRESSED CONC. SLAB



(N) WALK-IN FREEZER

14980_SITE_ENLARGED PLAN

LEGEND

Description :

Scale:

FRIENDLY HILLS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

5/21/2019 3:00 PM

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DSA APN #:

36-42

Date:

04-25-2019

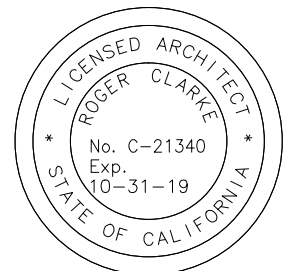
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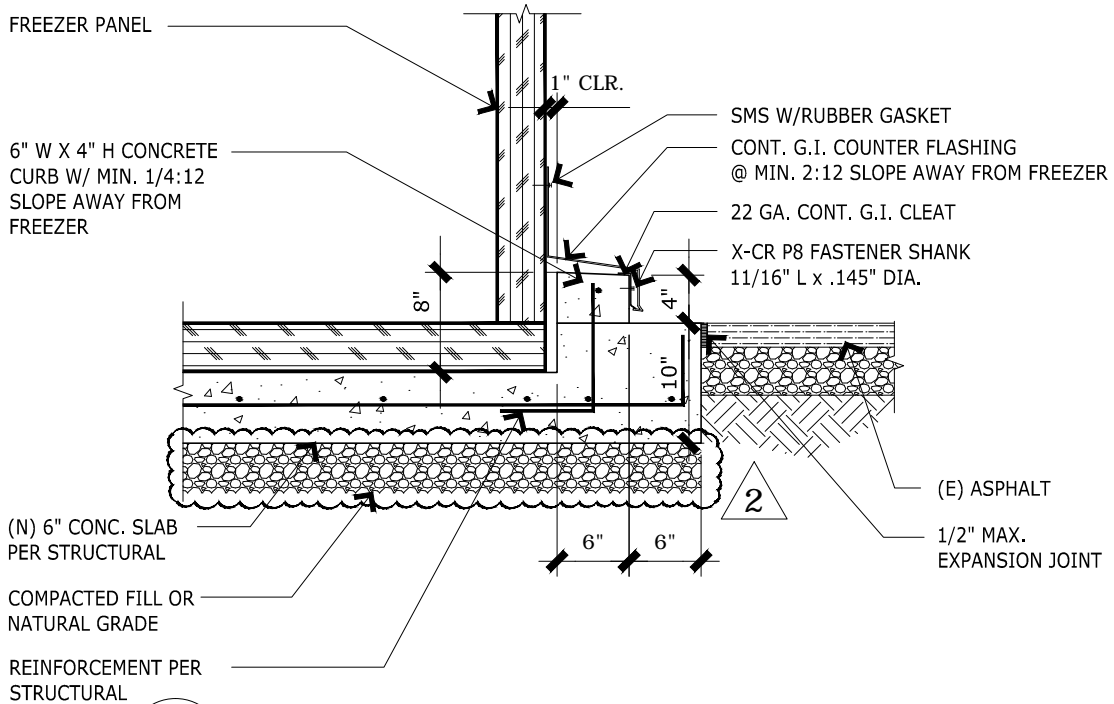
1-49-80

Sheet #

ASK-6

Stamp:





1
S-0.2

CONCRETE CURB.dwg

(N) CONC. CURB FLASHING DETAIL | 3/4"=1'-0" | 8

SITE DETAILS / ASD-1.0

SEE DETAIL

FRIENDLY HILLS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

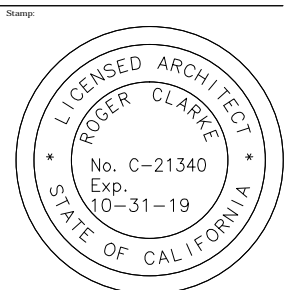
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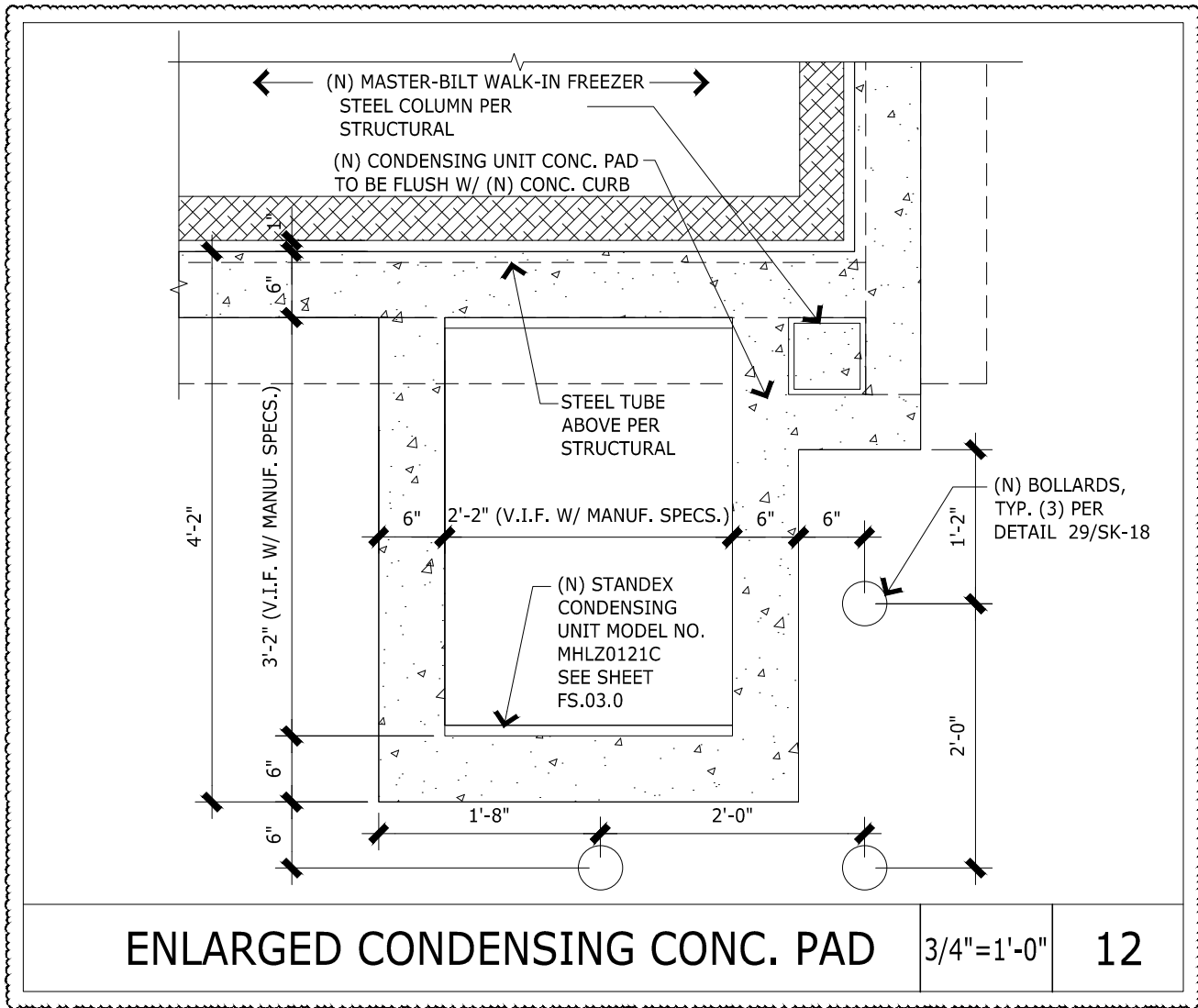
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DSA File #:
36-42
Date:
04-25-2019
Project #:
1-49-80
Sheet

ASK-7





SITE DETAILS / ASD- 1.0

SEE DETAIL

FRIENDLY HILLS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

5/28/2019 1:39 PM

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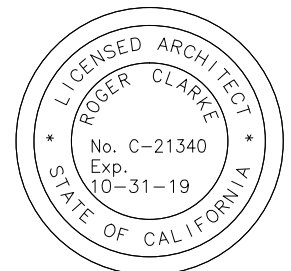
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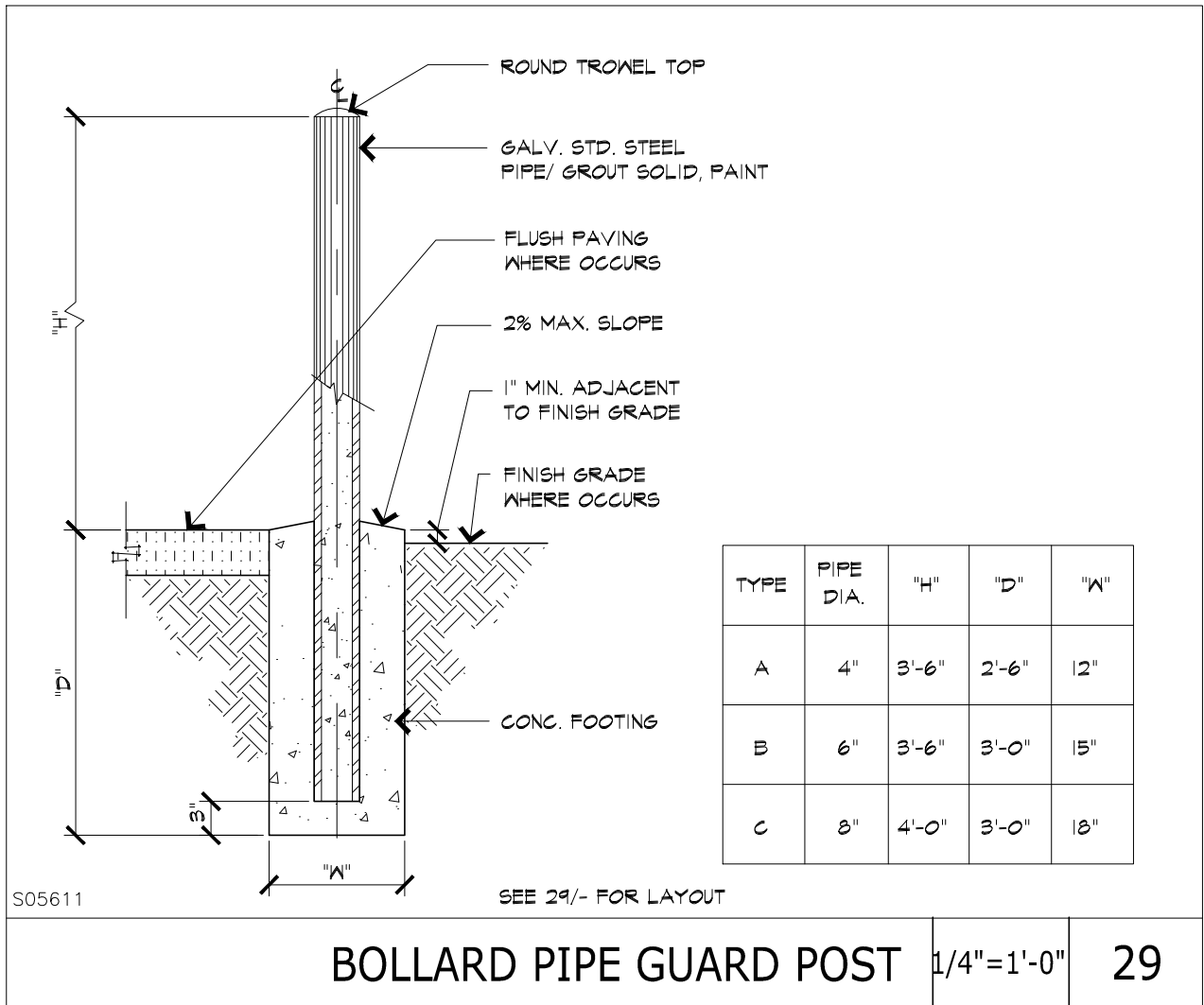
Date:

Project #:

Sheet #:
ASK-8

Stamp:





SITE DETAILS / ASD-1.0

SEE DETAIL

FRINDLY HILLS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

5/28/2019 1:30 PM

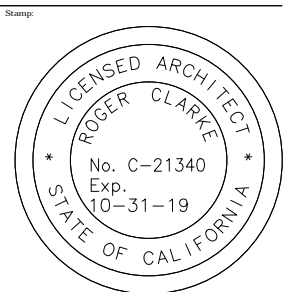
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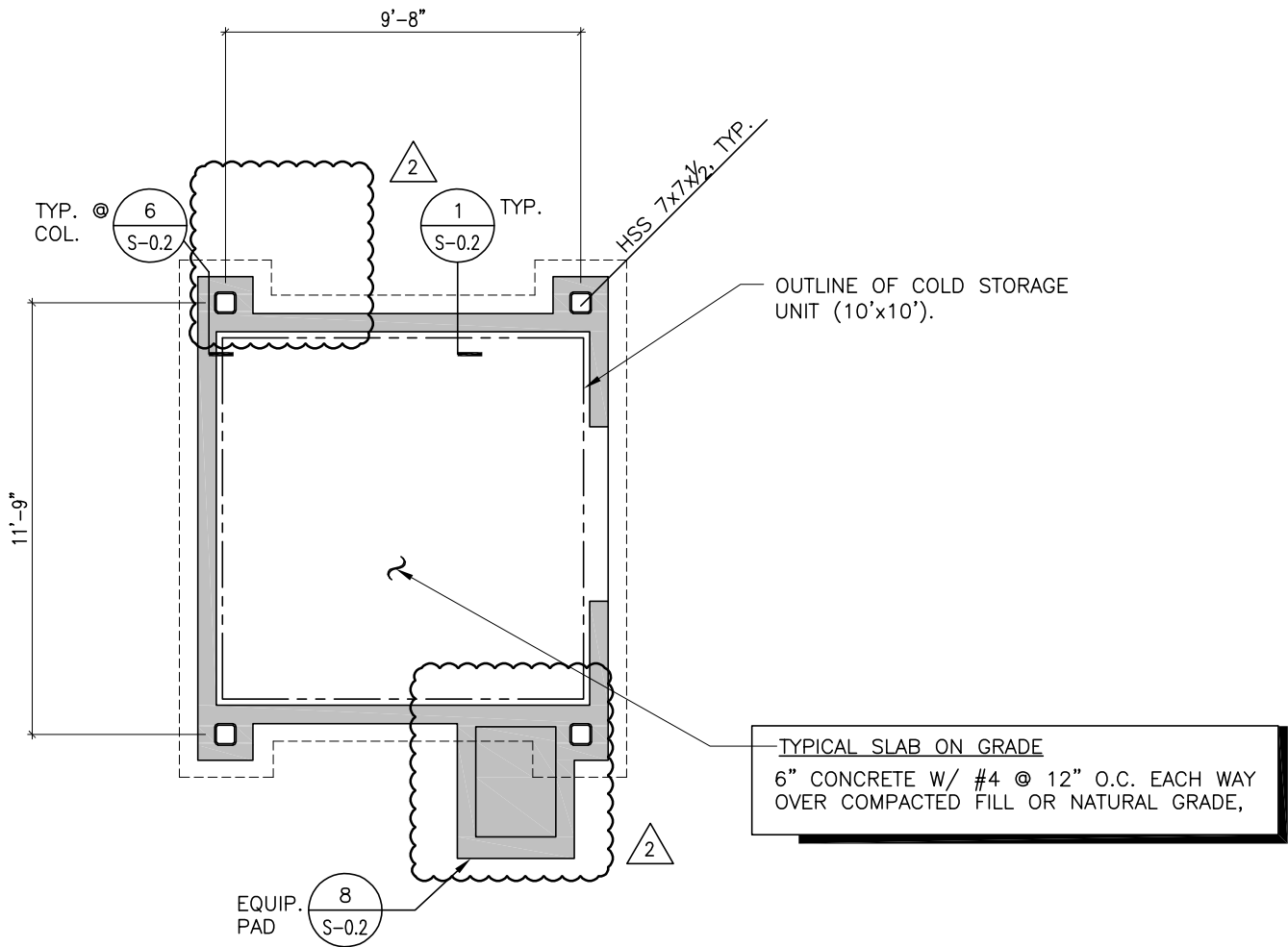


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Date:
05-28-2019
Project #:
1-49-80
Sheet #:

ASK-18





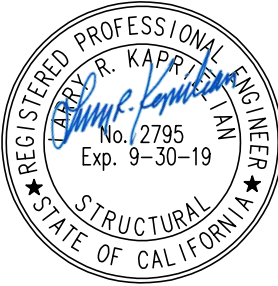
CONSULTANT



**KNA
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ENGINEERS**

9931 Muirlands Boulevard, Irvine, CA 92618
Tel (949) 462-3200 • Fax (949) 462-3201
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203.486



ADDENDUM #2

COLD STORAGE FRAME FOUNDATION PLAN - S-0.1

N.T.S

FRIENDLY HILLS ELEMENTARY SCHOOL

**WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT**

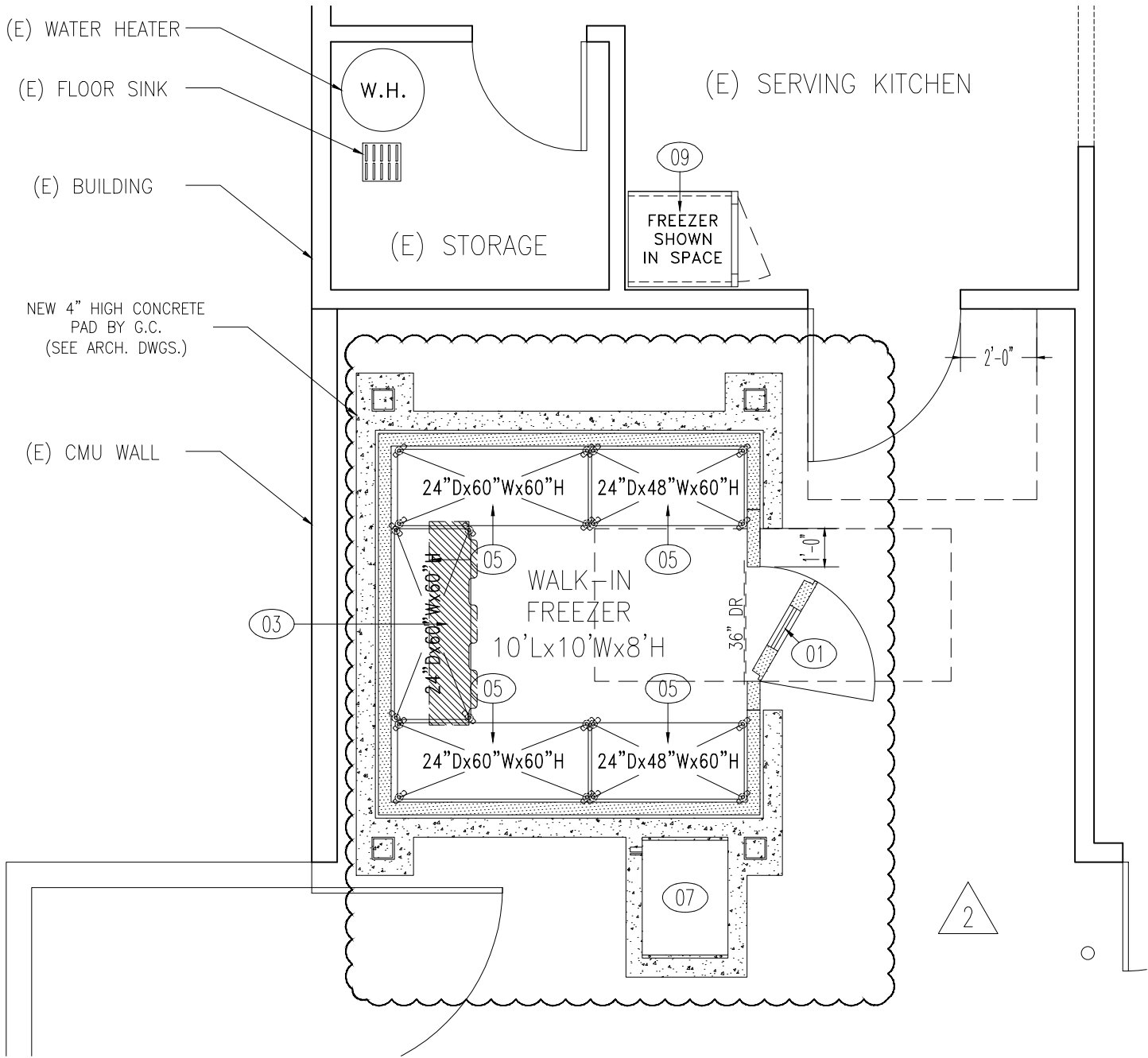
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DSA File #:	36-42
Date:	05-21-2019
Project #:	1-49-80
Sheet #:	SSK-2.1





DIELI MURAWKA HOWE

Food Service Design Consultants
 P.O. BOX 28197
 San Diego, CA 92128

Phone: 619.285.1189

Design By: RICHARD DIELI



FOODSERVICE EQUIPMENT FLOOR PLAN - FS.01.0

Scale: **1/4" = 1'-0"**

FRIENDLY HILLS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION MORONGO SCHOOL DISTRICT

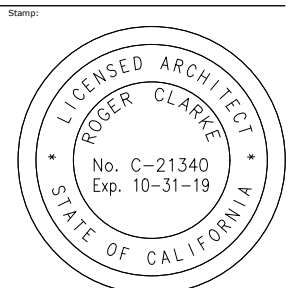
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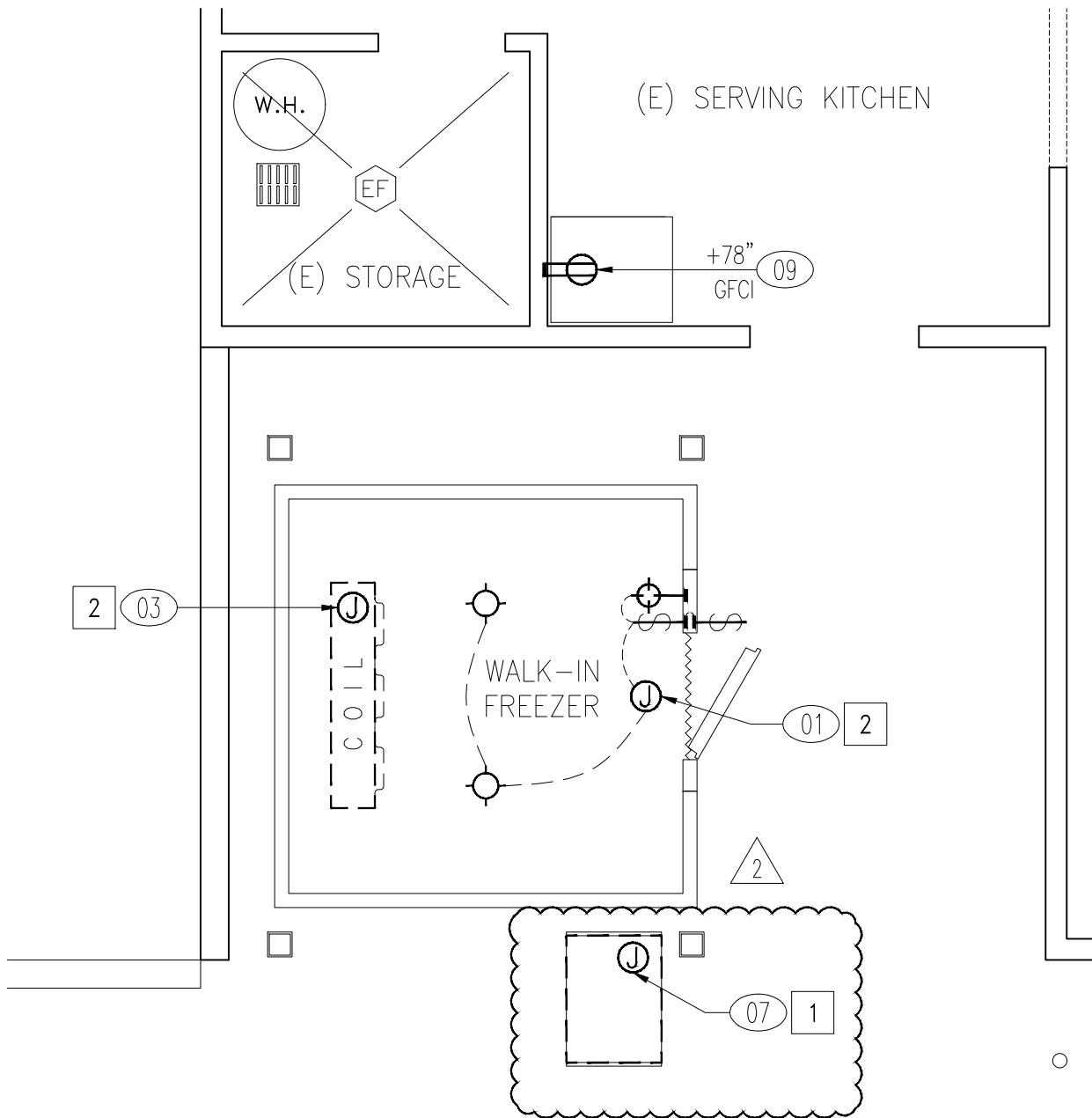
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 5751 PALMER WAY, SUITE C, CARLSBAD CALIFORNIA 92010 (760) 438 5899



DSA APN #:
 DSA File #: **36-42**
 Date: **04-25-2019**
 Project #: **1-49-80**
 Sheet #:

FSSK-1.0





DIELI MURAWKA HOWE

Food Service Design Consultants
 P.O. BOX 28197
 San Diego, CA 92128

Phone: 619.285.1189

Design By: RICHARD DIELI



FOODSERVICE EQUIPMENT ELECTRICAL PLAN - FS.02.0

Scale: **1/4" = 1'-0"**

FRIENDLY HILLS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION MORONGO SCHOOL DISTRICT

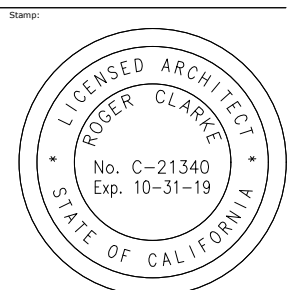
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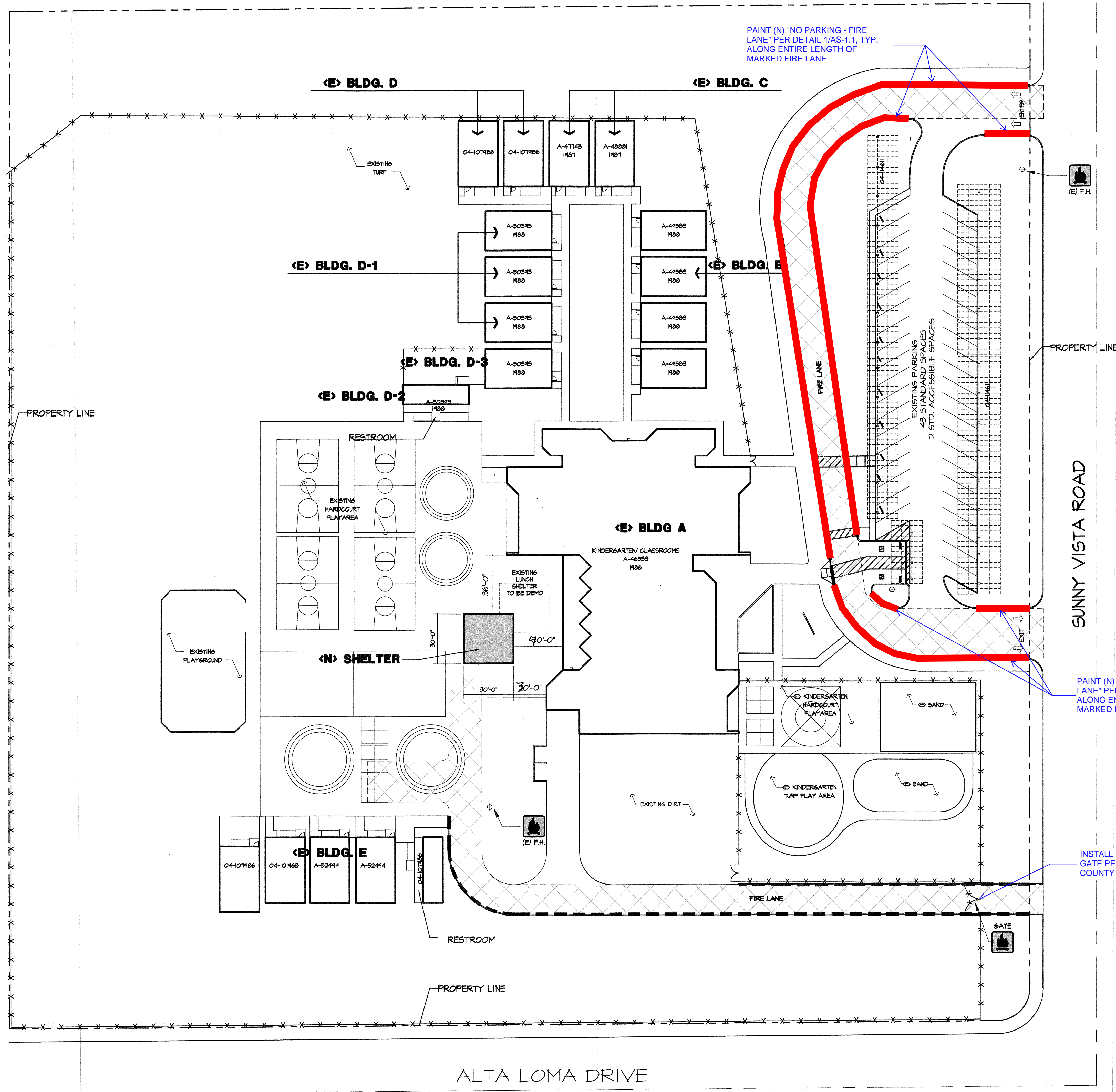
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 DSA File #: **36-42**
 Date: **04-25-2019**
 Project #: **1-49-80**
 Sheet #:

FSSK-2.0





FIRE LANE CURB 1/2"=1'-0" 1



- NEW 30' x 30' SHELTER
- EXISTING BUILDING TO REMAIN

SITE LEGEND

- GATE: 20'-0" MIN. WIDE FIRE TRUCK ACCESS GATES W/ KNOX BOX
- FH: EXISTING FIRE HYDRANT
- RED PAINTED CURB
- FIRE LANE: INDICATES 20'-0" MIN. WIDE FIRE TRUCK ACCESS LANE WITH NOT LESS THAN 19'-6" VERTICAL CLEARANCE PER 2016 C.F.C. 505.2.1. CONTRACTOR TO PROVIDE ALL REQUIRED PAINTING OF CURBS AND PROVIDE ALL SIGNAGE PER LOCAL FIRE AUTHORITY
- MINIMUM TURNING RADIUS FOR FIRE TRUCK ACCESS

FIRE DEPT. ACCESS LEGEND

DSA 810 LOCAL FIRE AUTHORITY REVIEW

To facilitate the Division of the State Architect's (DSA) approval of the Fire/Life Safety portion of a project, DSA requires Local Fire Authority (LFA) review of certain elements as identified in this form. Use of this form is mandatory for projects that add square footage to a campus or if any item on the form is relevant to the project. For additional information, see DSA 810 Instructions and DSA Policy 09-01.

PROJECT INFORMATION

School District/Owner: MORONGO UNIFIED SCHOOL DISTRICT
 Project Name/School: FRIENDLY HILLS ELEMENTARY SCHOOL
 Project Address: 7255 SUNNY VISTA RD., JOSHUA TREE, CA 92532

LOCAL FIRE AUTHORITY (LFA)

LFA Agency Name: SAN BERNARDINO COUNTY FIRE DEPARTMENT Title: SPECIALIST
 LFA Reviewer Name: CHRIS MARKLOFF
 Email: CMARKLOFF@SBC.FIRE.ORG Telephone Number: 760.955.8190

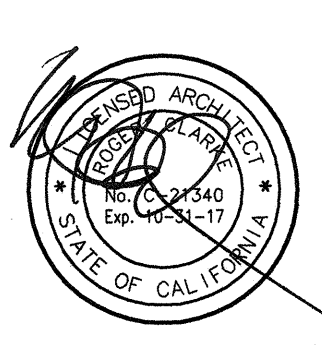
I have reviewed and responded to the application for this project as listed below.
 Note: Only sign this form when it is applicable to the fire site plan. A loose form is not acceptable to DSA.
 LFA Reviewer's Signature: [Signature] Date: 6/19/17

Review Key: "Y" = Complies with LFA requirements "N" = Not approved (complete Section 6)
 "NA" = Not applicable to the project "NR" = LFA elects not to review

Item	Y	N	NA	NR
1 Where an elevator does not meet medical emergency service call size, per the California Building Code (CBC), use of stairways for emergency rescue and patient transport is acceptable.				
2 Access roads, fire lane markings, pavers and gate entrances are in accordance with Title 19, California Code of Regulations and the California Fire Code, Chapter 5.				
3 Fire hydrant location and distribution complies with the California Fire Code (or see # 4).				
4 Fire hydrant location and distribution complies with NFPA 1142, "Alternate Means." If "NR" is checked, DSA can only approve on-site water storage as an alternate. The signature of the school district official is required to acknowledge the use of alternate means.				
5 The location(s) of the proposed post indicator valve and fire department connection meet the requirements of this jurisdiction.				
6 The location(s) of the detector check valve assembly meet the requirements of this jurisdiction.				
7 Is the project located in a hazard severity zone area? (CBC, Chapter 7A, Section 701A.) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
8 Check type if "Yes": <input type="checkbox"/> Moderate <input type="checkbox"/> High <input type="checkbox"/> Very High <input type="checkbox"/> WIPA (If one of these boxes is checked, the project design must meet the requirements of Chapter 7A.)				
COMMENTS (note deficiencies):				

DSA 810 (rev. 05-15-14) DIVISION OF THE STATE ARCHITECT DEPARTMENT OF GENERAL SERVICES STATE OF CALIFORNIA Page 1 of 1

FIRE AUTHORITY APPROVAL



CONSULTANT

IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 04 116455
 ACS FLS [Signature]
 DATE JUL 6 2017

DSA APPROVAL APPROVALS

File Name: J:\Morongo_4\114471_FriendlyHillsES-Structure\DESIGN\4471_02-AS-1-1.dwg Jun 14 2017 2:01pm

Drawn by	No.	DATE	BY	REMARKS
Checked by				
Date	06-2017			
Commission No.	1-49-77			

RUHNAURUHNAUCLARKE ARCHITECTS PLANNERS
 3775 Tenth Street Riverside, California 92501 TEL. (951) 684 4664 FAX. (951) 684 6276 RRCARCH.COM

NEW SHADE STRUCTURE
 FRIENDLY HILLS ELEMENTARY SCHOOL
 MORONGO UNIFIED SCHOOL DISTRICT

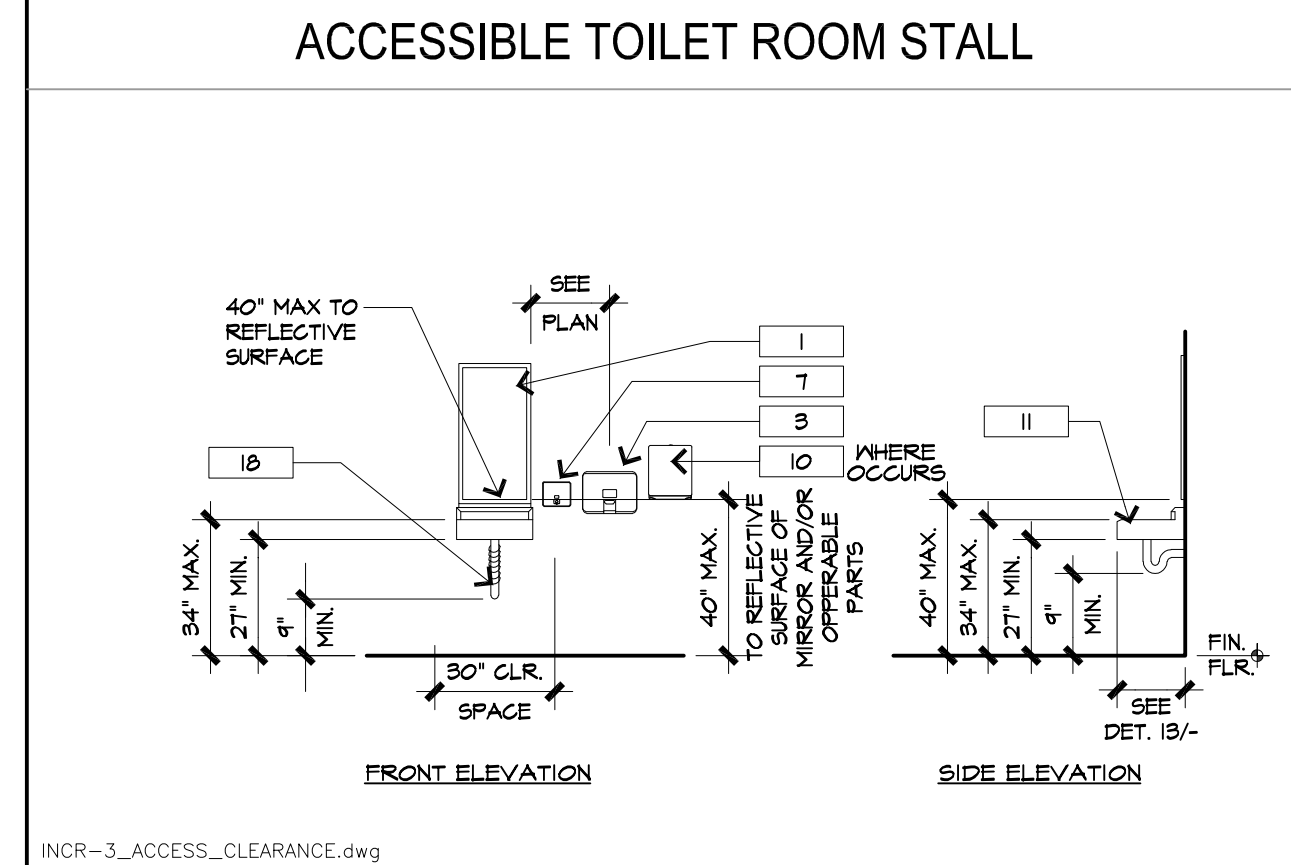
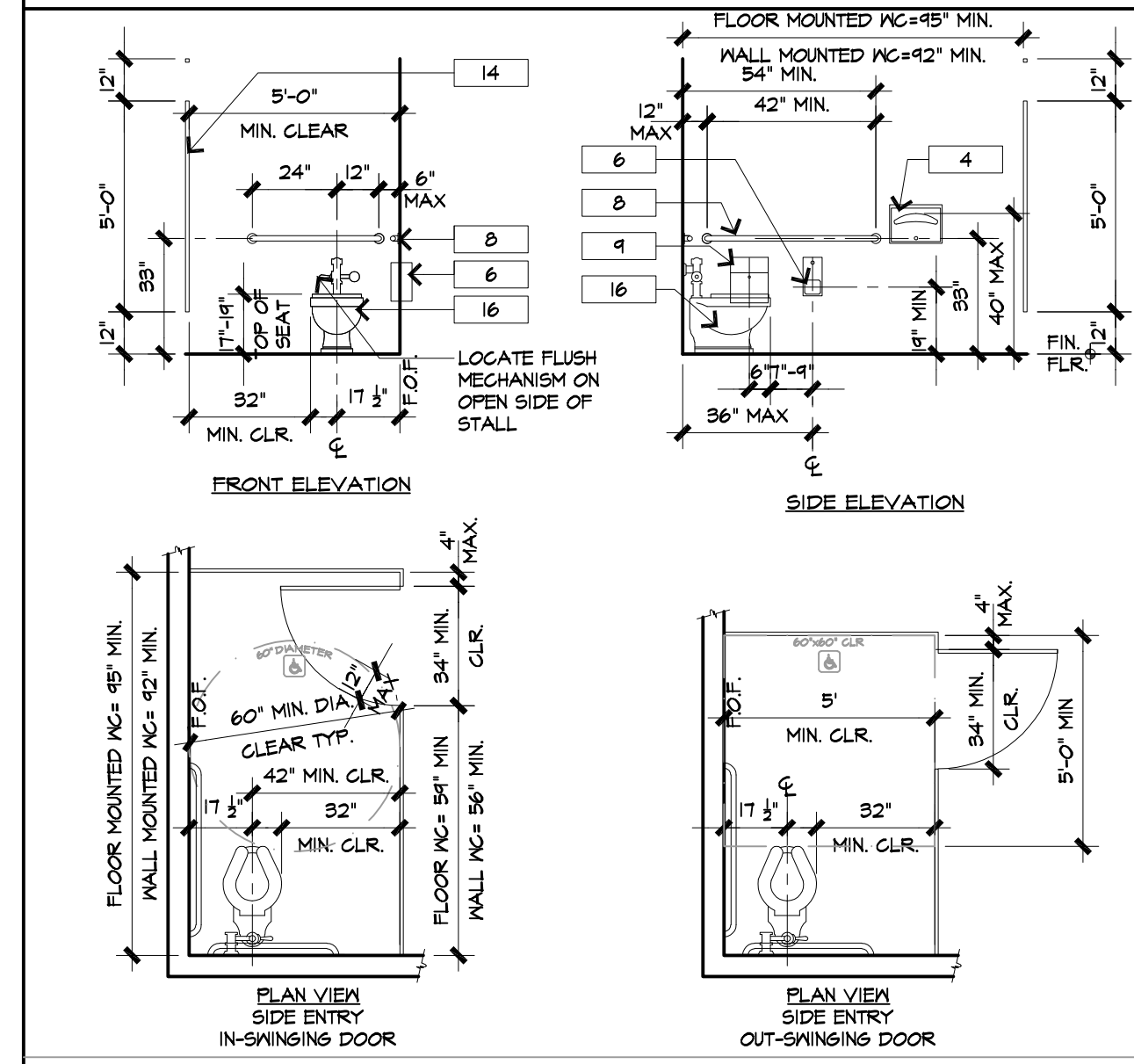
FIRE ACCESS SITE PLAN
 SHEET NUMBER AS-1.1
 OF XX SHEETS

SITE PLAN 1"=30'

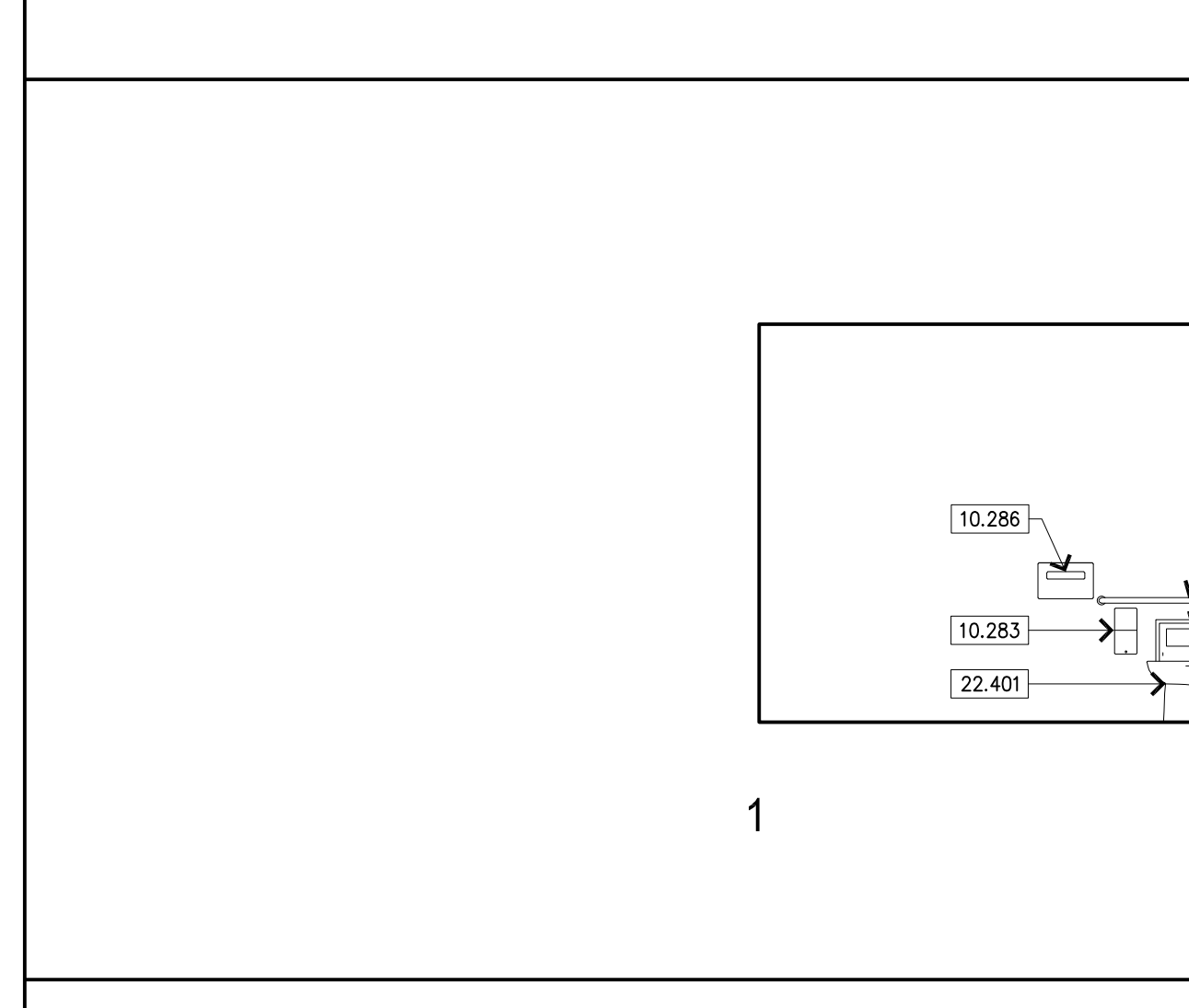
MOUNTING HEIGHTS

DIMENSIONS:	ADULTS	AGE 3-4	AGE 5-8	AGE 9-12
TOILET CENTERLINE FROM WALL	17"-18"	12"	12"-15"	15"-18"
TOILET SEAT HEIGHT (TO TOP OF SEAT)	17" - 18"	11"-12"	12"-15"	15"-17"
GRAB BAR HEIGHT (TO TOP OF BAR)	33"-36"	20"-25"	20"-25"	25"-27"
GRAB BAR (DISTANCE FROM WALL)	12" MAX	N/A	N/A	N/A
TOILET PAPER HEIGHT (HEIGHT TO DELIVERY)	19" MIN.	14"	14"-17"	17"-19"
TOILET PAPER IN FRONT OF TOILET (CENTERLINE)	7" - 9"	7" - 9"	7" - 9"	7" - 9"
NAPKIN DISPOSAL IN FRONT OF TOILET	12" MAX.	12" MAX.	12" MAX.	12" MAX.
DISPENSER HEIGHT	40" MAX.	40" MAX.	40" MAX.	40" MAX.
MIRROR / SOAP DISPENSER (TO BOTTOM)	40" MAX.	40" MAX.	40" MAX.	40" MAX.
LAVATORY/SINK TOP HEIGHT	34" MAX.	28" MAX.	28" MAX.	28" MAX.
LAVATORY APRON CLEARANCE	24" MIN.	N/A	N/A	N/A
LAVATORY/SINK KNEE CLEARANCE	27" MIN.	N/A	24" MIN.	24" MIN.
URINAL LIP HEIGHT	17" MAX.	17" MAX.	17" MAX.	17" MAX.
URINAL FLUSH HANDLE HEIGHT	44" MAX.	44" MAX.	44" MAX.	44" MAX.

NOTE: CONTRACTOR TO PROVIDE MOUNTING HEIGHTS INDICATED. VERIFY INTENDED USE OF EACH RESTROOM PRIOR TO ROUGH IN. PROVIDE BACKING PER STRUCTURAL DRAWINGS AS REQUIRED.



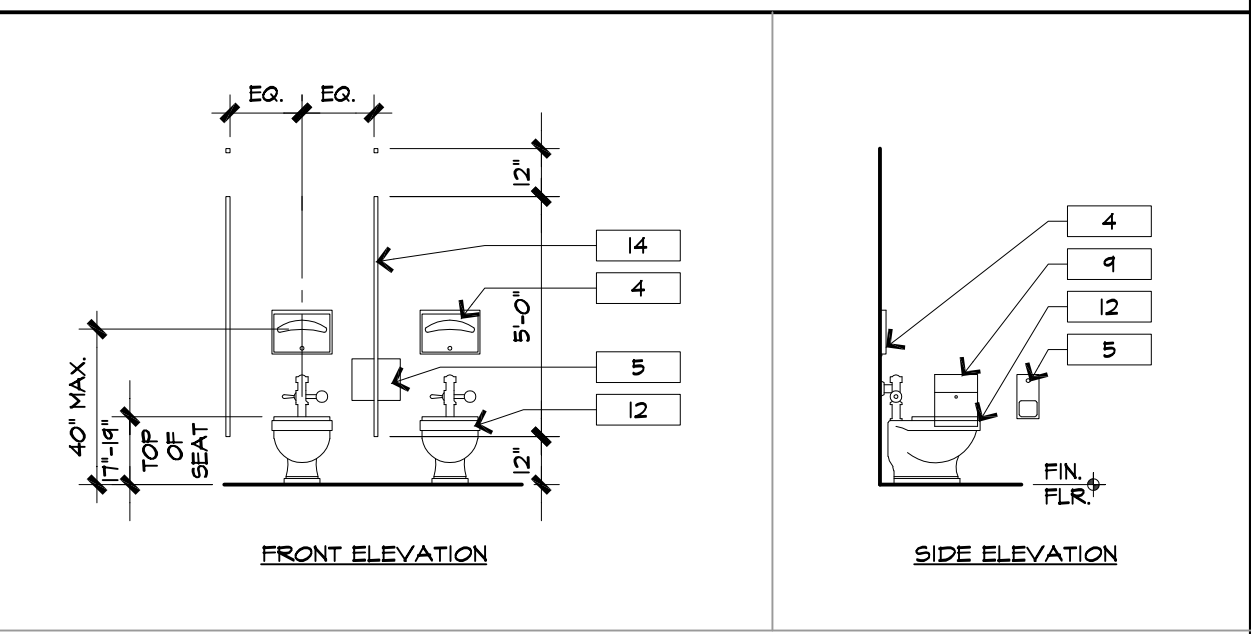
ACCESSIBLE TOILET ROOM STALL



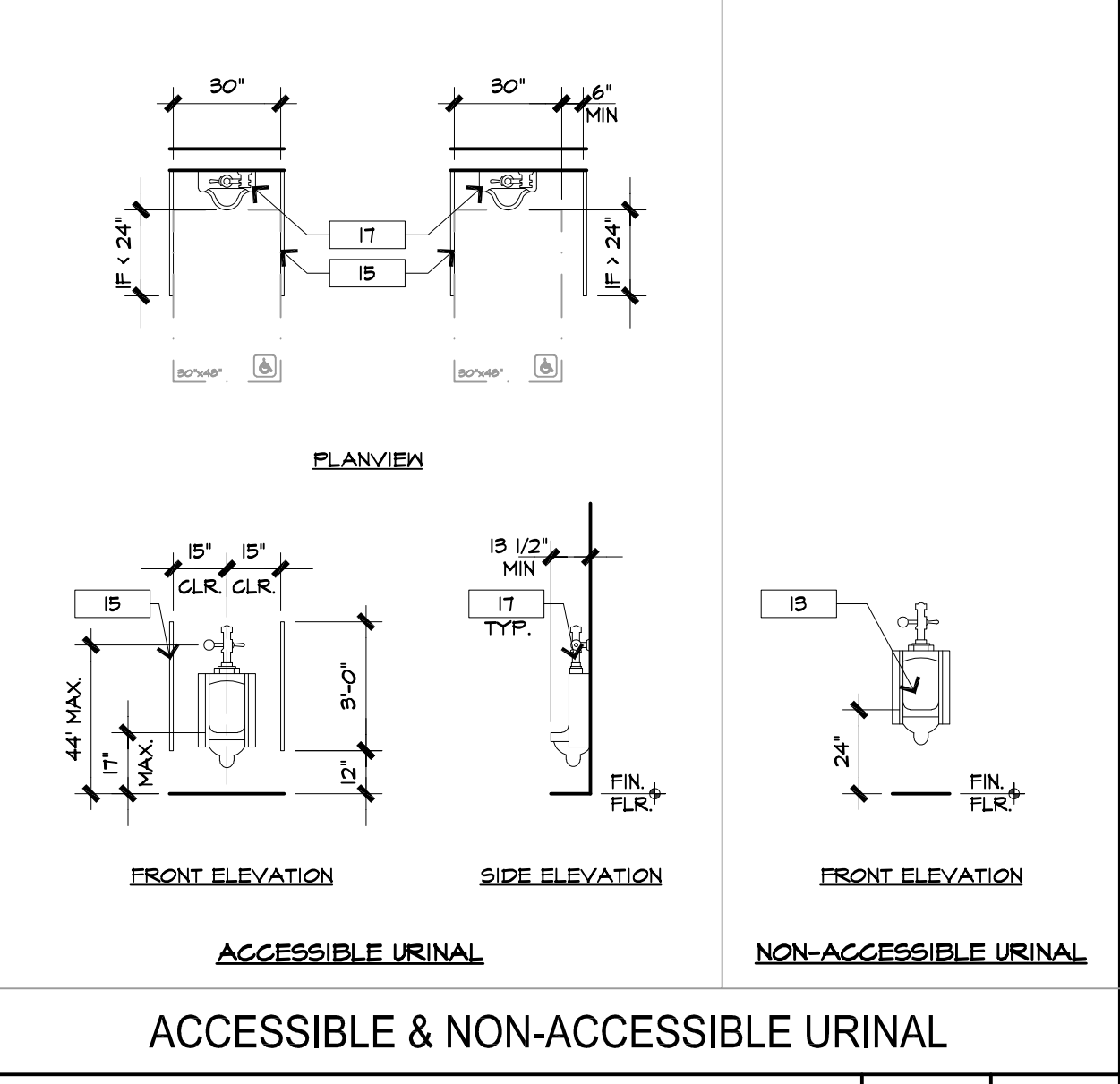
ACCESSIBLE TOILET ROOM FIXTURES & ACCESSORIES

ACCESSORY AND EQUIPMENT KEYNOTES

KEYNOTE	DESCRIPTION
1	NEW 18" X 30" TEMPERED GLASS MIRROR WITH STAINLESS STEEL ANGLE FRAME AND SHELF.
2	NOT USED
3	NEW SEMI-RECESSED AUTOMATIC HAND DRYER.
4	NEW SURFACE MOUNTED TOILET SEAT COVER DISPENSER - STAINLESS STEEL WITH SATIN FINISH.
5	NEW RECESSED MALT-ROLL TOILET TISSUE DISPENSER - STAINLESS STEEL WITH SATIN FINISH (5" MAX. PROJECTION FROM FINISH FACE OF WALL).
7	NEW SURFACE MOUNTED SOAP DISPENSER FOR LIQUID SOAP - STAINLESS STEEL WITH SATIN FINISH. INSTALLED AT 40" AFF. (OVER OBSTRUCTION)
8	NEW GRAB BARS (SIDE = 48" L. X 1 1/2" DIA., REAR = 36" L. X 1 1/2" DIA.) - STAINLESS STEEL.
9	NEW SURFACE MOUNTED FEMINE NAPKIN DISPOSAL (WOMENS ONLY) - STAINLESS STEEL WITH SATIN FINISH.
10	NEW SURFACE MOUNTED PAPER TOWEL DISPENSER - STAINLESS STEEL WITH SATIN FINISH.



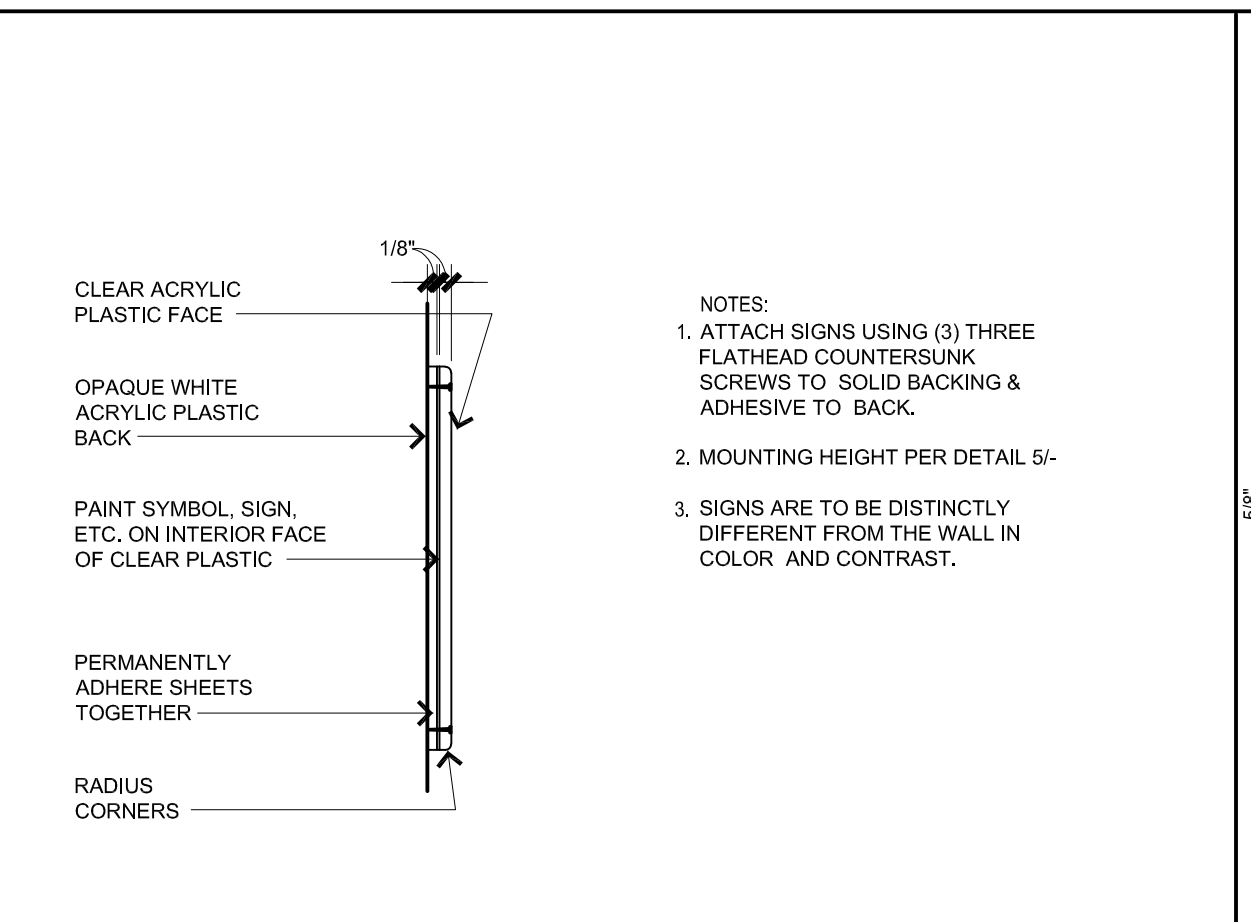
WALL SIGN ATTACHMENT



TOILET JAMB SIGNS

TOILET DOOR SIGNS

TOILET SIGNS

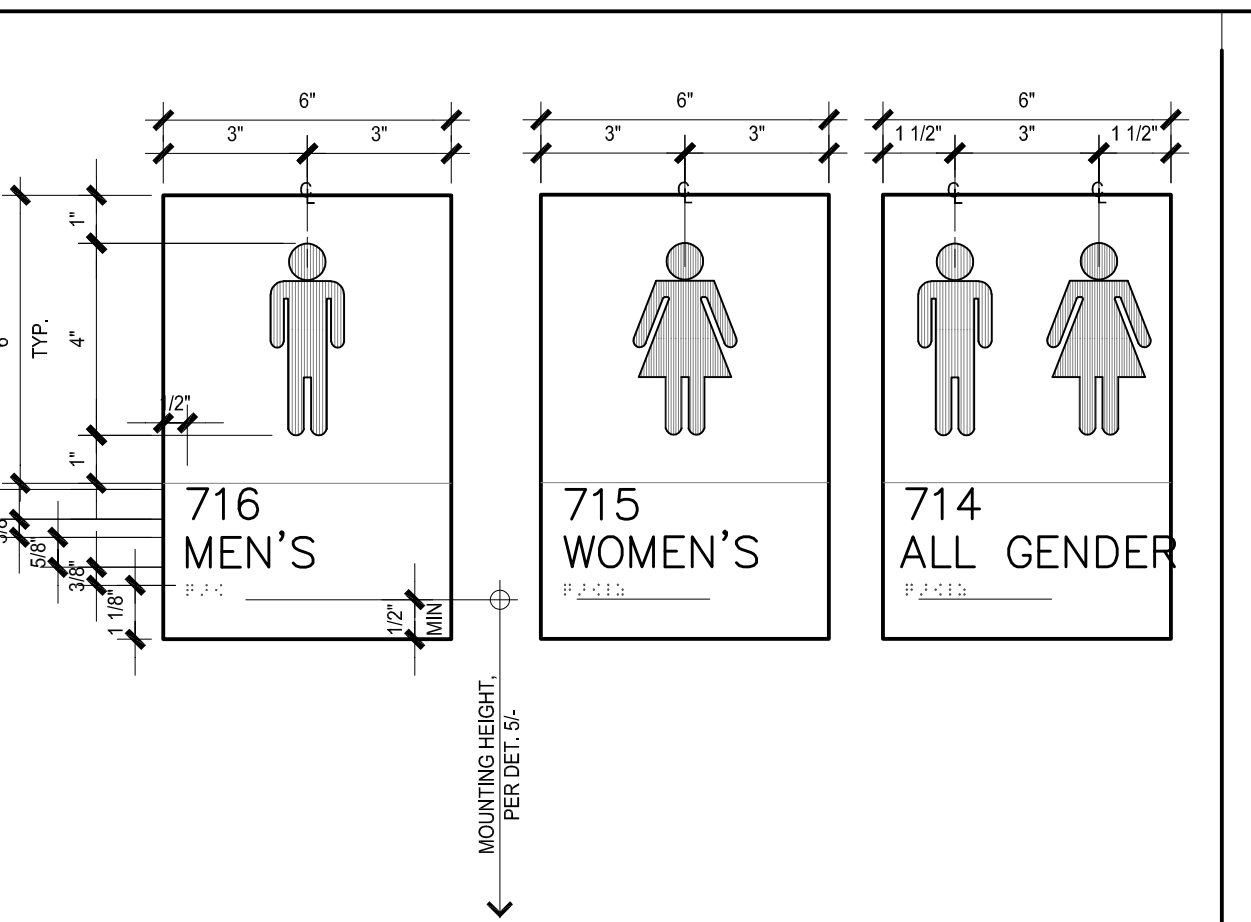


WALL SIGN ATTACHMENT

TOILET JAMB SIGNS

TOILET DOOR SIGNS

TOILET SIGNS

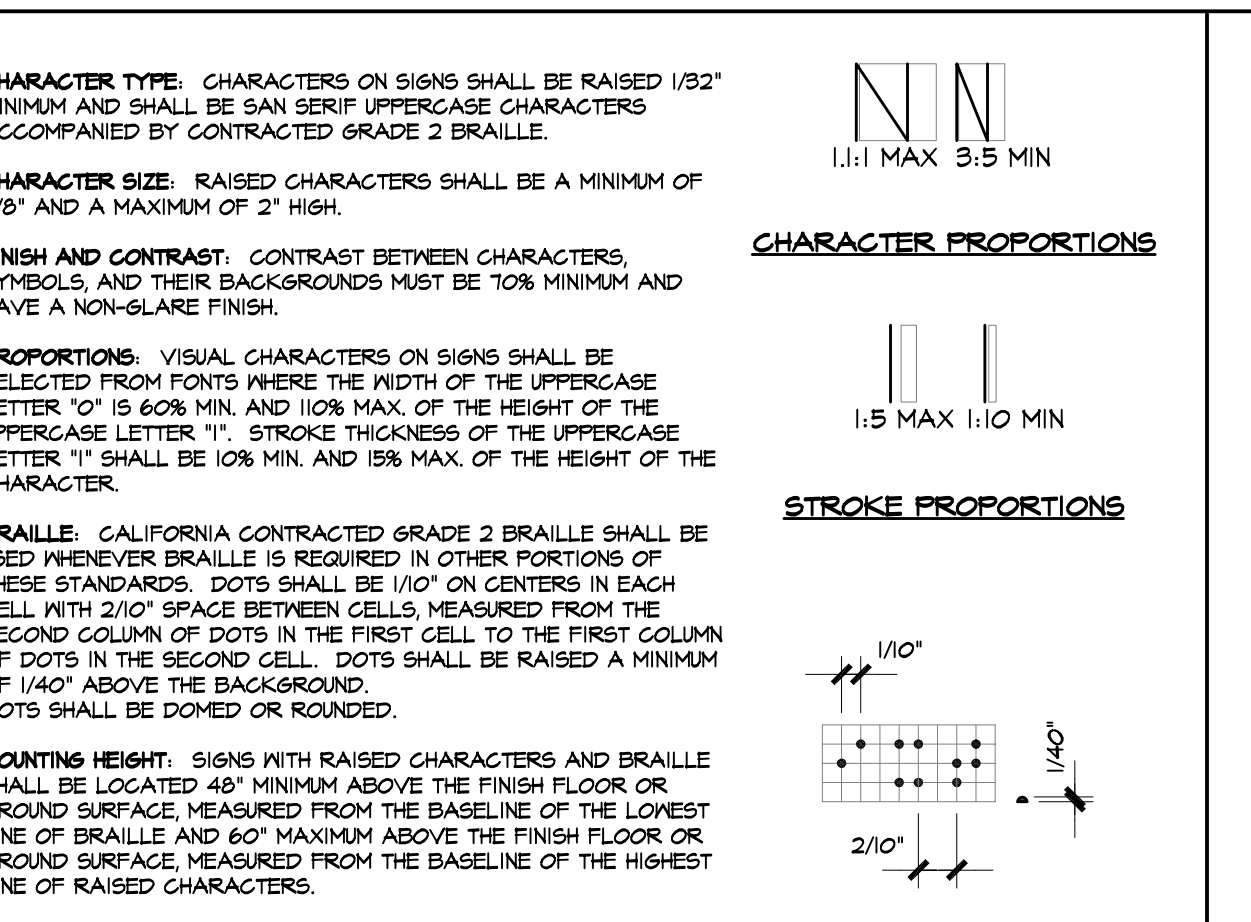


WALL SIGN ATTACHMENT

TOILET JAMB SIGNS

TOILET DOOR SIGNS

TOILET SIGNS



WALL SIGN ATTACHMENT

TOILET JAMB SIGNS

TOILET DOOR SIGNS

TOILET SIGNS

NEW CONSTRUCTION KEYNOTES

08	OPENING
8.100	<E> DOOR AND FRAME
10	SPECIALTIES
10.169	REMOVE (E) WALL & DOOR RESTROOM SIGNS & RETURN TO DISTRICT. INSTALL (N) WALL & DOOR RESTROOM SIGNS. REFER TO DETAIL # 4 THIS SHEET
10.211	<E> TOILET PARTITION TO REMAIN
10.282	<E> GRAB BAR TO REMAIN
10.283	REMOVE (E) TOILET PAPER DISPENSER & RETURN TO DISTRICT. INSTALL (N) TOILET PAPER DISPENSER (BOBRICK MODEL # B-2888)
10.285	REMOVE (E) SANITARY NAPKIN DISPOSAL & RETURN TO DISTRICT. INSTALL (N) SANITARY NAPKIN DISPOSAL (WOMENS RESTROOM ONLY) BOBRICK MODEL # B-270
10.286	INSTALL (N) TOILET SEAT COVER DISPENSER (BOBRICK MODEL # B-221)
10.287	REMOVE (E) SOAP DISPENSER & RETURN TO DISTRICT. INSTALL (N) SOAP DISPENSER (BOBRICK MODEL # B-2111)
10.288	REMOVE (E) PAPER TOWEL DISPENSER & RETURN TO DISTRICT. INSTALL (N) PAPER TOWEL DISPENSER (BOBRICK MODEL # B-262) HT. PER DETAIL # 18 / THIS SHEET & B-35643 WASTE RECEPTAL 12" BELOW
10.290	REMOVE (E) ELECTRIC HAND DRYER & RETURN TO DISTRICT. INSTALL (N) ELECTRIC HAND DRYER (THIN AIR BY EXCEL DRYERS). RE-CONNECT TO EXISTING POWER. SEE MOUNTING HT PER DETAIL # 18 / THIS SHEET
10.291	<E> STAINLESS STEEL MIRROR TO REMAIN
10.293	30"x48" CLEAR SPACE
10.294	60" DIA. ACCESSIBLE MANEUVERING
22	PLUMBING
22.401	<E> WATER CLOSET TO REMAIN
22.402	<E> URINAL TO REMAIN
22.404	<E> LAVATORY TO REMAIN

WALL SIGN ATTACHMENT

TOILET JAMB SIGNS

TOILET DOOR SIGNS

TOILET SIGNS

WALL SIGN ATTACHMENT

TOILET JAMB SIGNS

TOILET DOOR SIGNS

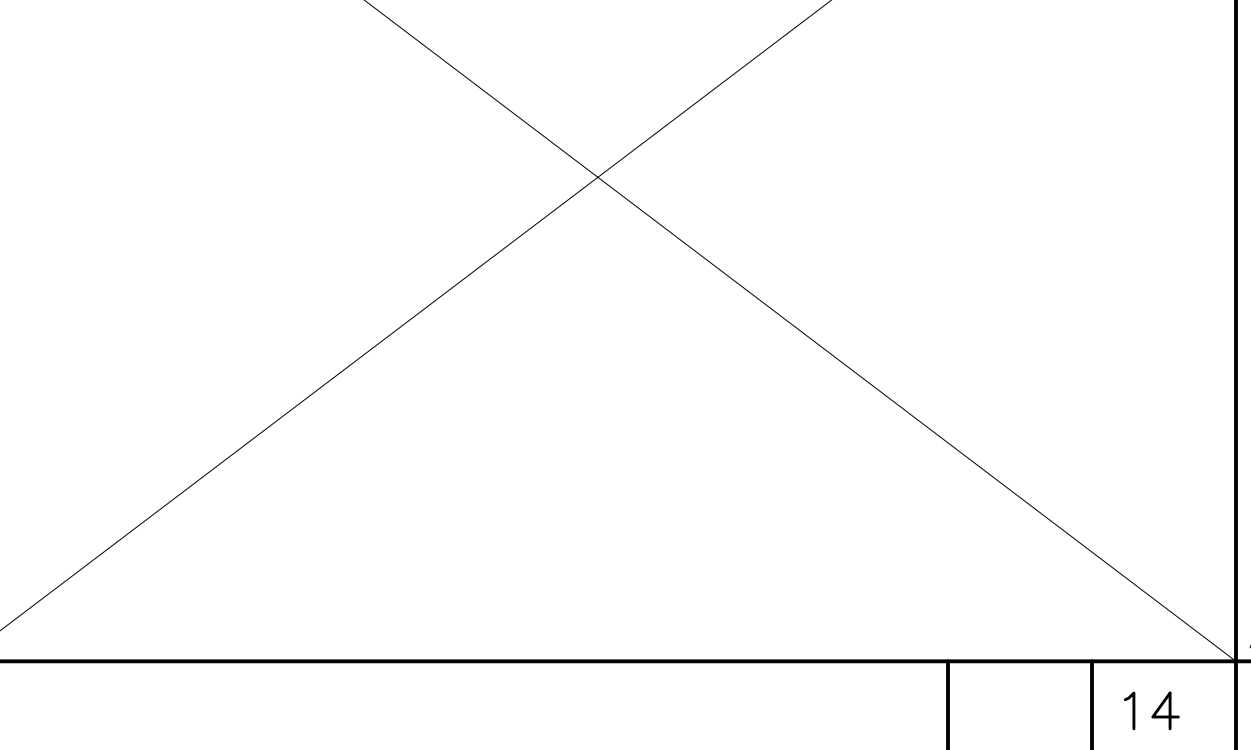
TOILET SIGNS

WALL SIGN ATTACHMENT

TOILET JAMB SIGNS

TOILET DOOR SIGNS

TOILET SIGNS



WALL SIGN ATTACHMENT

TOILET JAMB SIGNS

TOILET DOOR SIGNS

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TOILET JAMB SIGNS

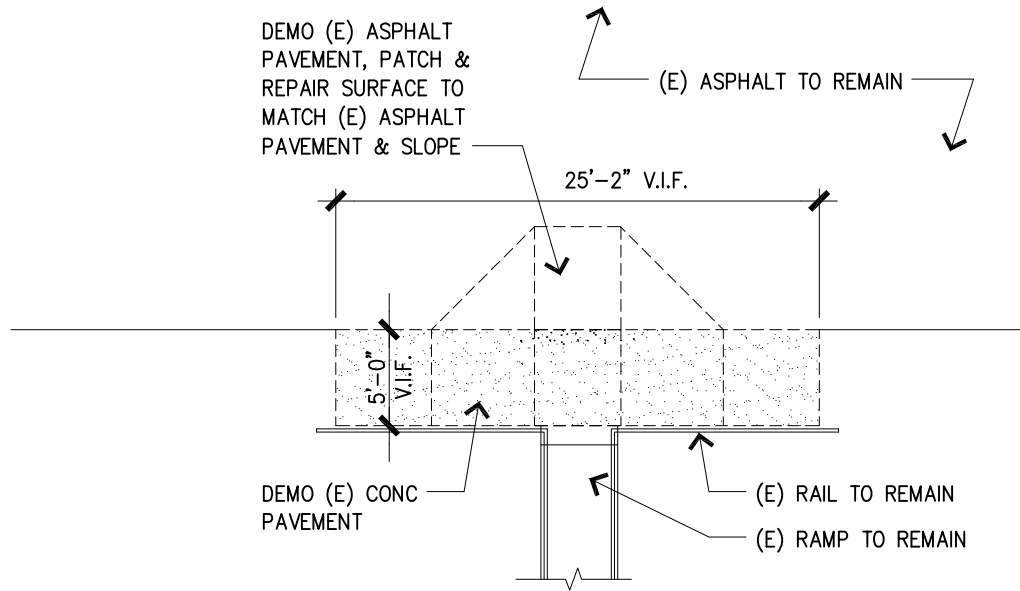
TOILET DOOR SIGNS

TOILET SIGNS

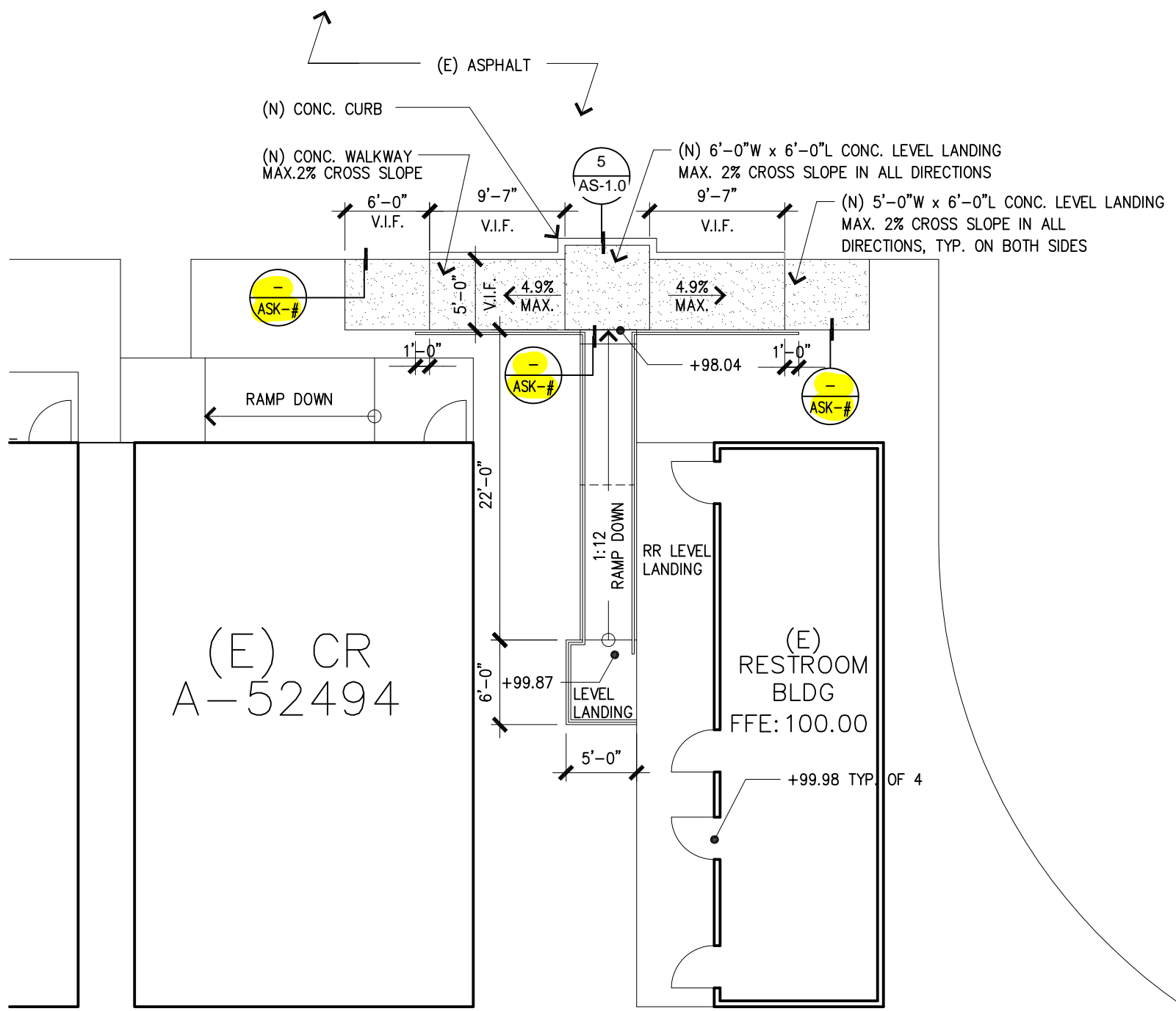
WALL SIGN ATTACHMENT

TOILET JAMB SIGNS

TOILET DOOR SIGNS



DEMO PLAN



PROPOSED PLAN

RESTROOM BUILDING RAMP LANDING

1" = 10'-0"

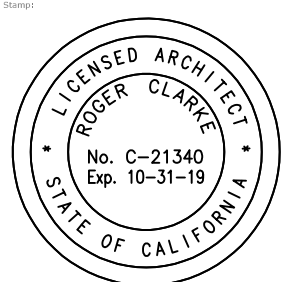
FRIENDLY HILLS ELEMENTARY SCHOOL

NEW SHADE STRUCTURE
MORONGO UNIFIED SCHOOL DISTRICT

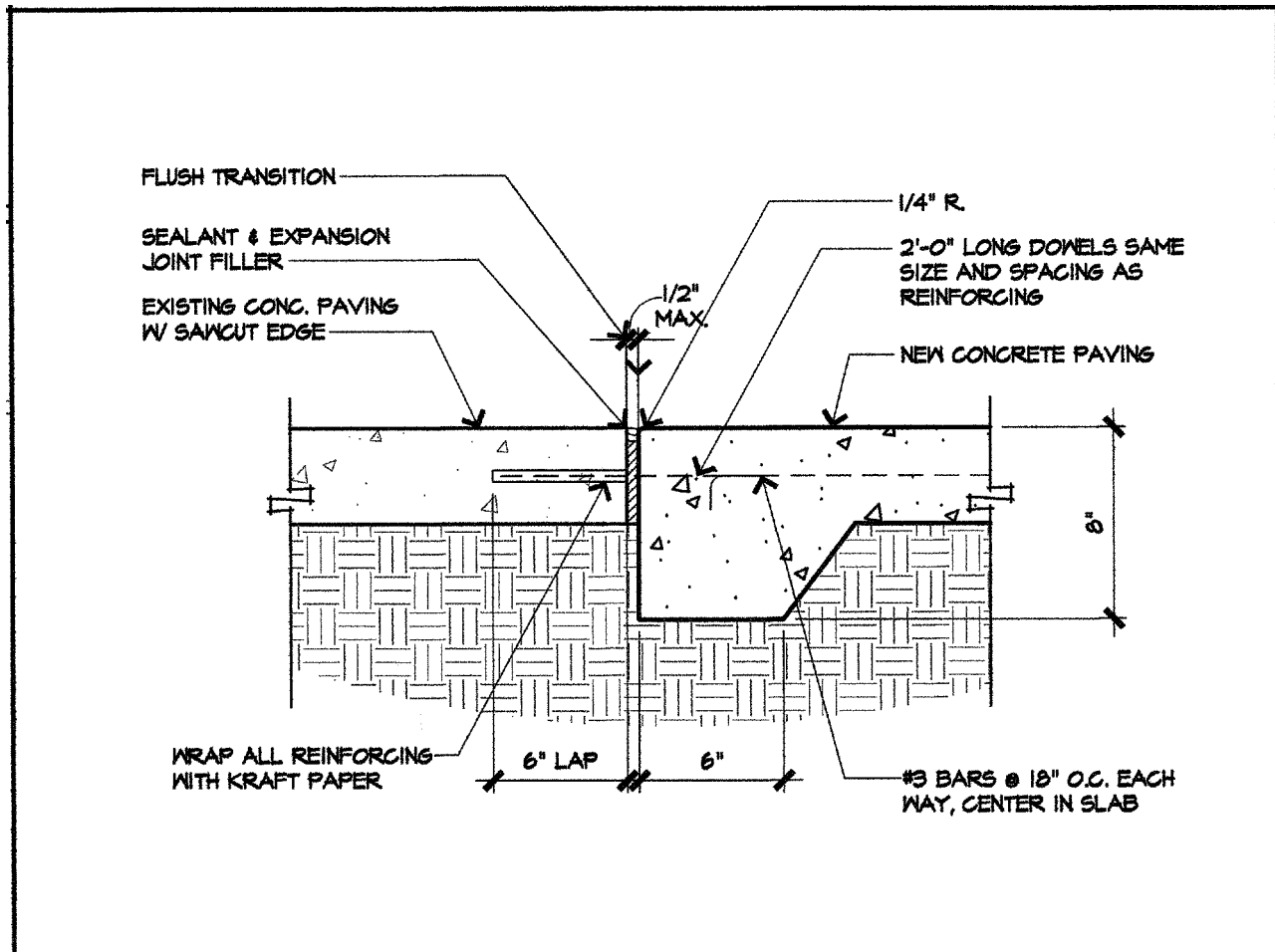
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DSA APP #1: 04-116455
DSA FRM #1: 36-42
Date: 05-23-2019
Project #1: 1-49-77
Sheet:

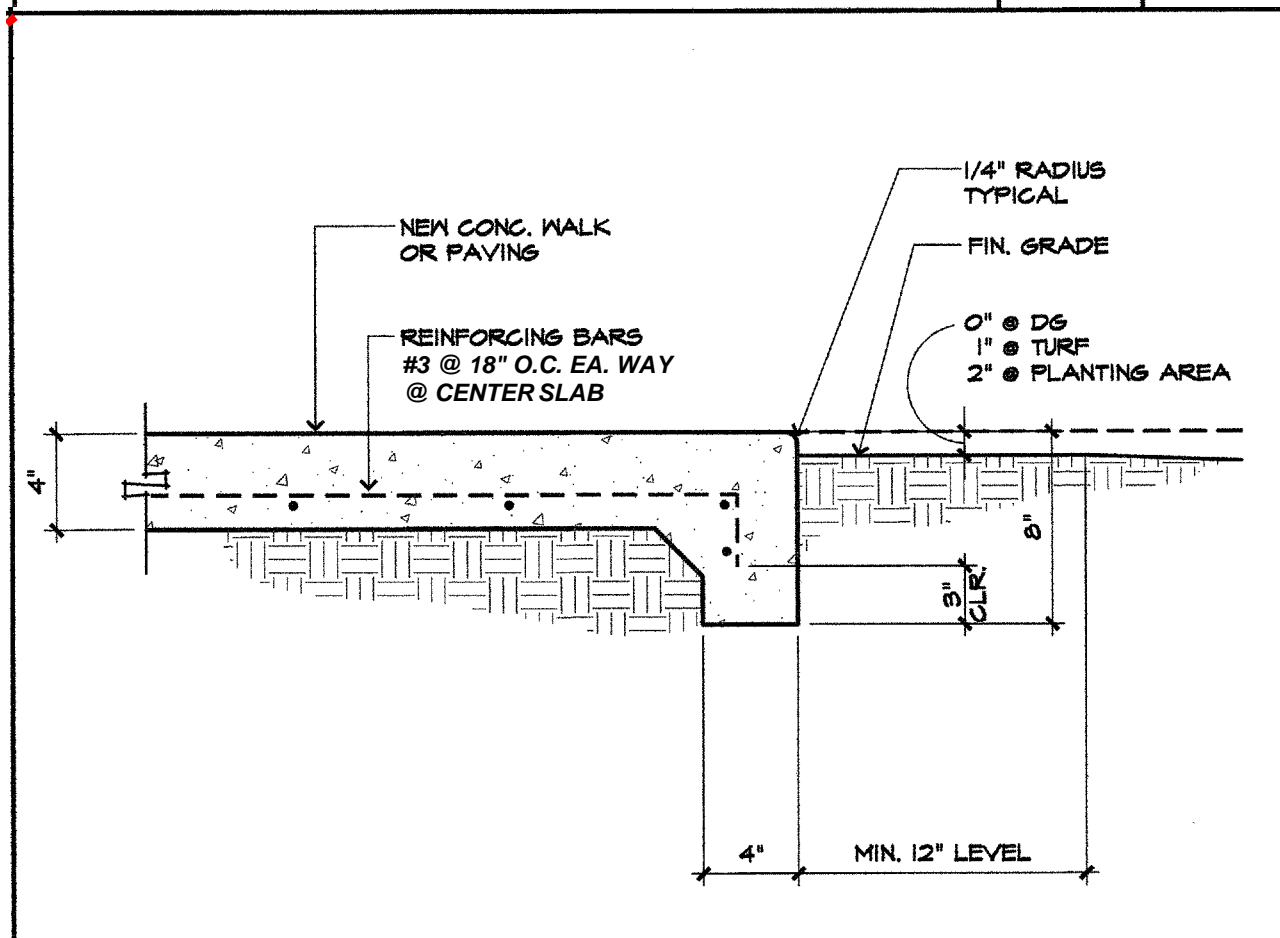


ASK-9



CONC-CONC

(N) CONC. PAVING @ (E) CONC PAVING	1 1/2"	2
------------------------------------	--------	---



02_edge-conc

CONCRETE PAVING EDGE	1 1/2"	1
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CONCRETE PAVEMENT DETAILS

AS NOTED

FRIENDLY HILLS ELEMENTARY SCHOOL

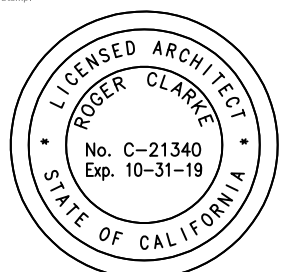
**NEW SHADE STRUCTURE
MORONGO UNIFIED SCHOOL DISTRICT**

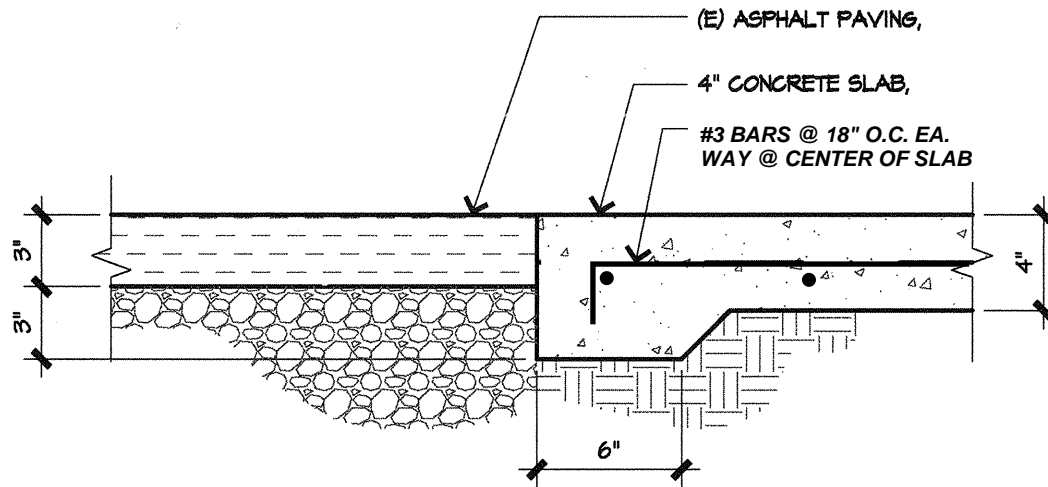
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DSA APP #1
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DSA FILE #1
36-42
Date:
05-23-2019
Project #1:
1-49-77
Sheet #

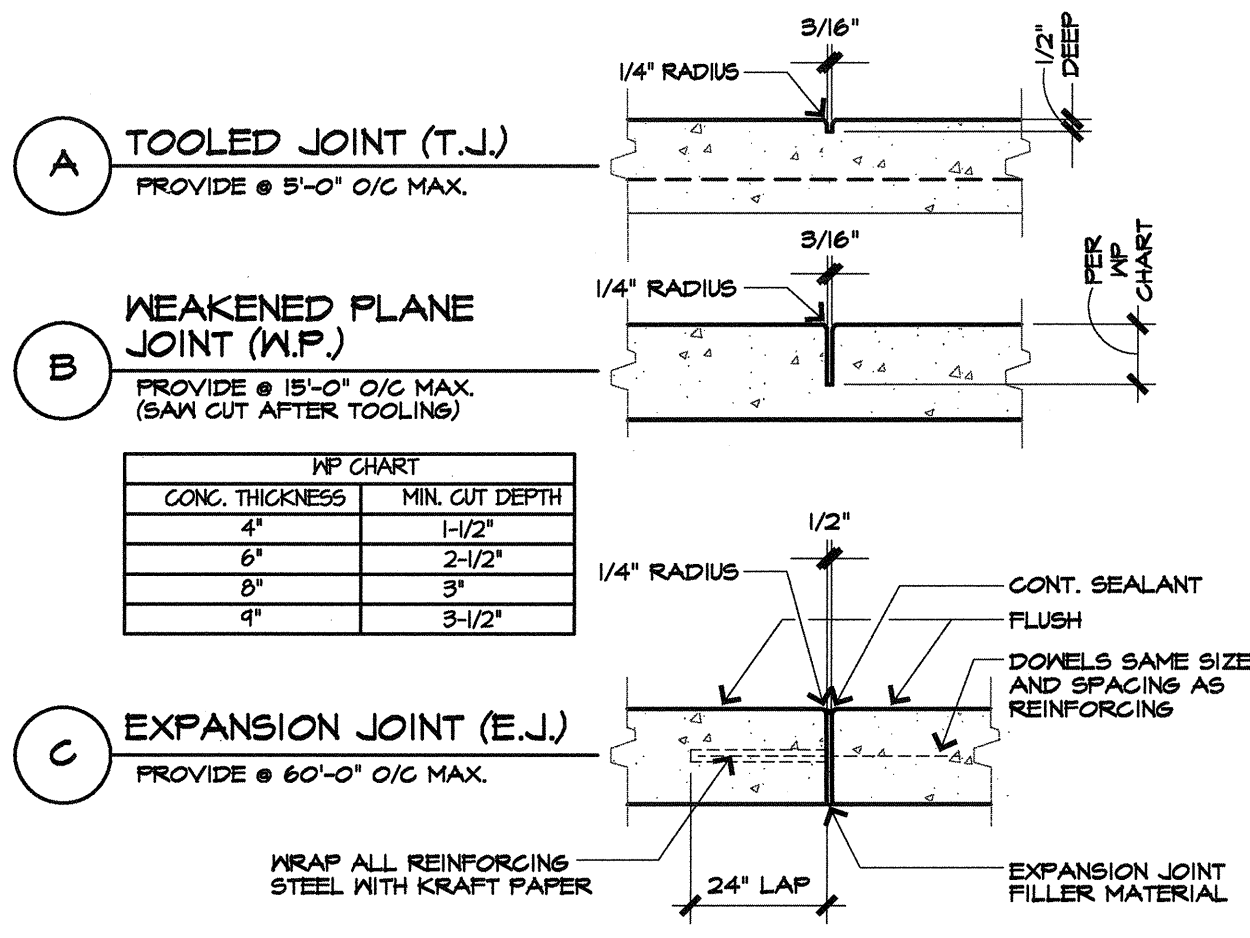
ASK-10





CONG-AC

CONCRETE SLAB @ (E) ASPHALT PAVING | 1 1/2"=1'-0" | 2



TYP. CONCRETE JOINTS | 1 1/2" | 1

CONCRETE PAVEMENT DETAILS

AS NOTED

FRIENDLY HILLS ELEMENTARY SCHOOL

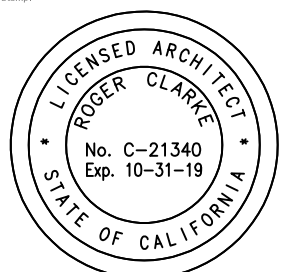
NEW SHADE STRUCTURE
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DSA APR #1: 04-116455
DSA FEB #1: 36-42
Date: 05-23-2019
Project #: 1-49-77
Sheet #:

ASK-11

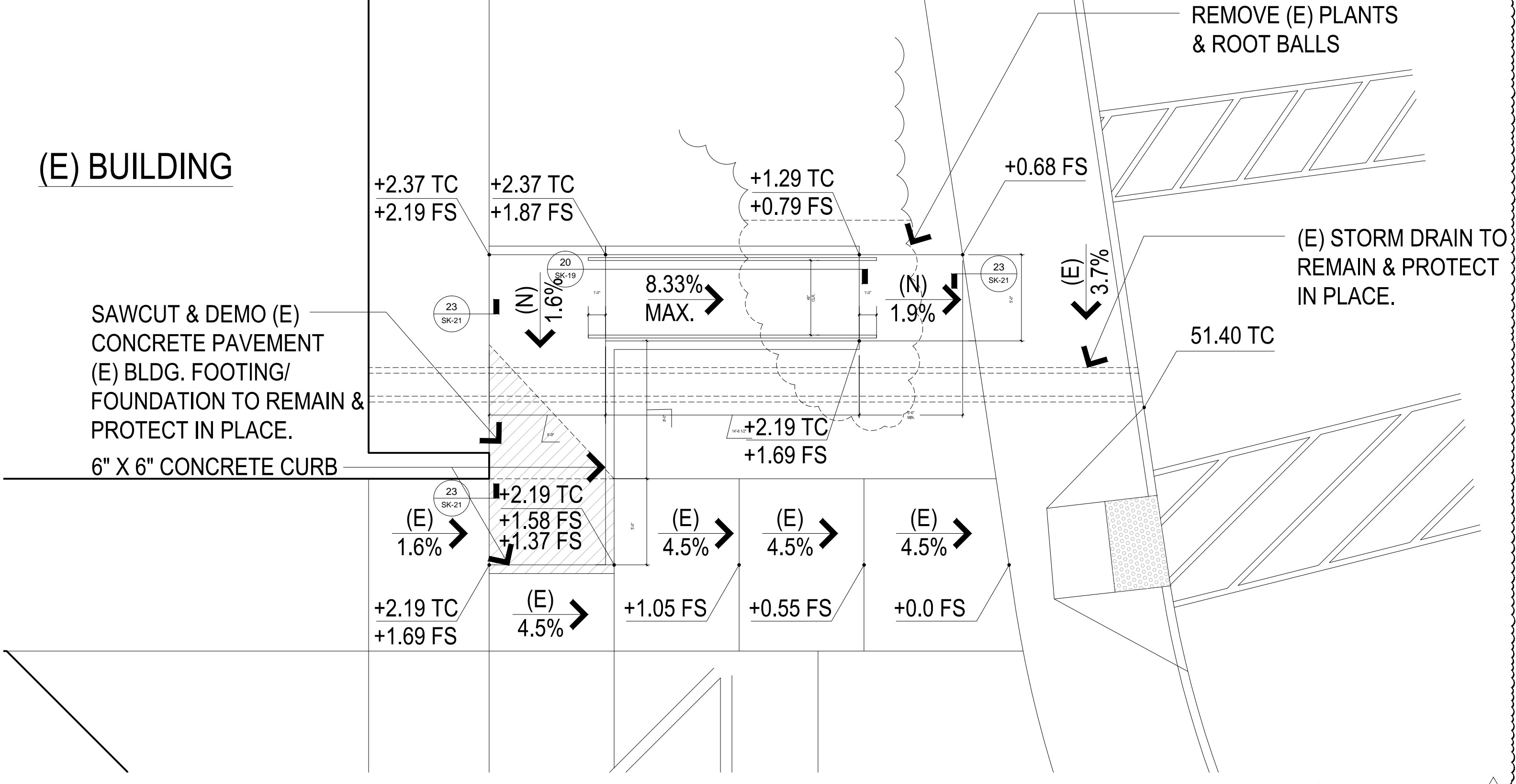


(E) BUILDING

REMOVE (E) PLANTS
& ROOT BALLS

SAWCUT & DEMO (E)
CONCRETE PAVEMENT
(E) BLDG. FOOTING/
FOUNDATION TO REMAIN &
PROTECT IN PLACE.
6" X 6" CONCRETE CURB

(E) STORM DRAIN TO
REMAIN & PROTECT
IN PLACE.



Description: Scale: 3/16" = 1'-0"

MORONGO SCHOOL DISTRICT

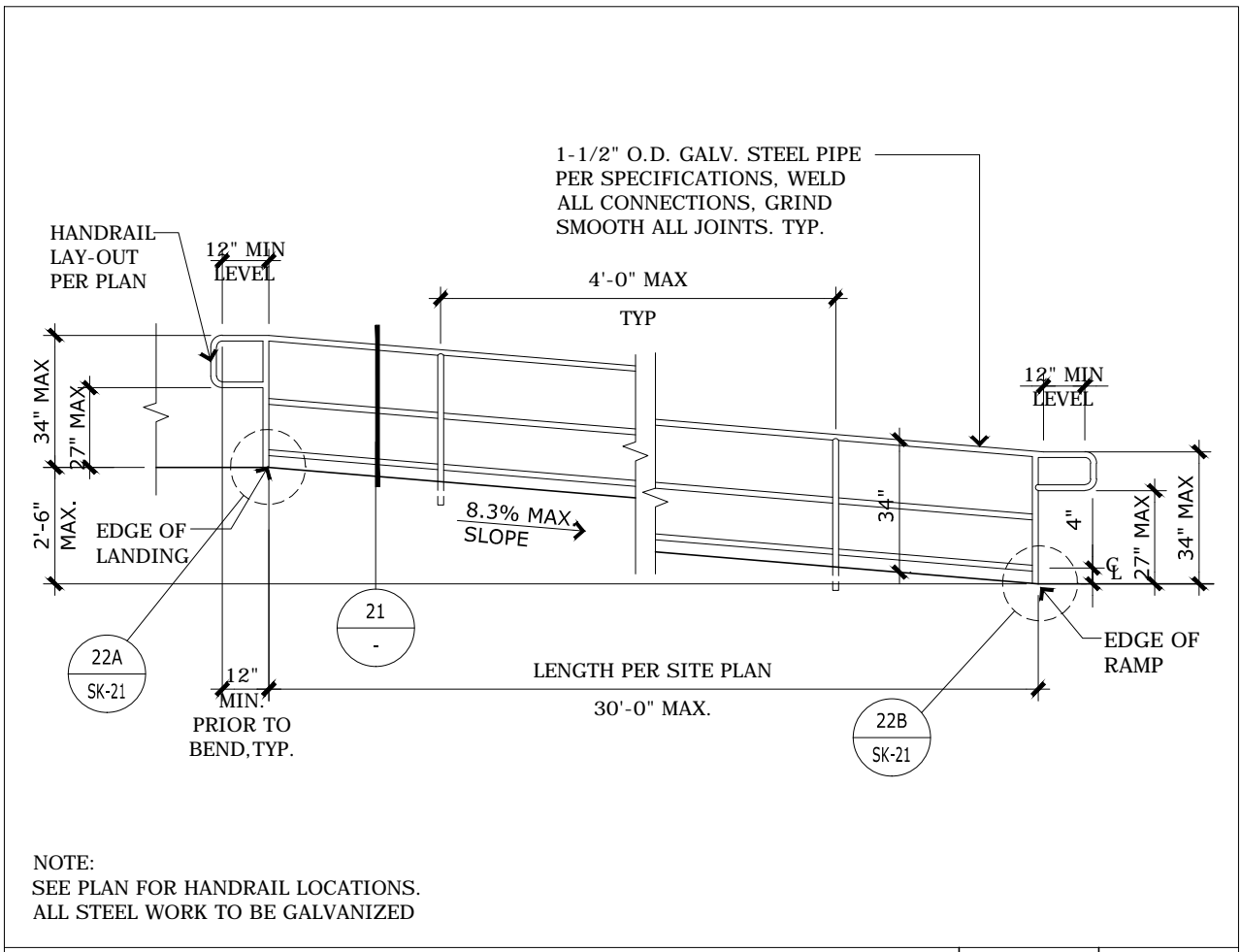
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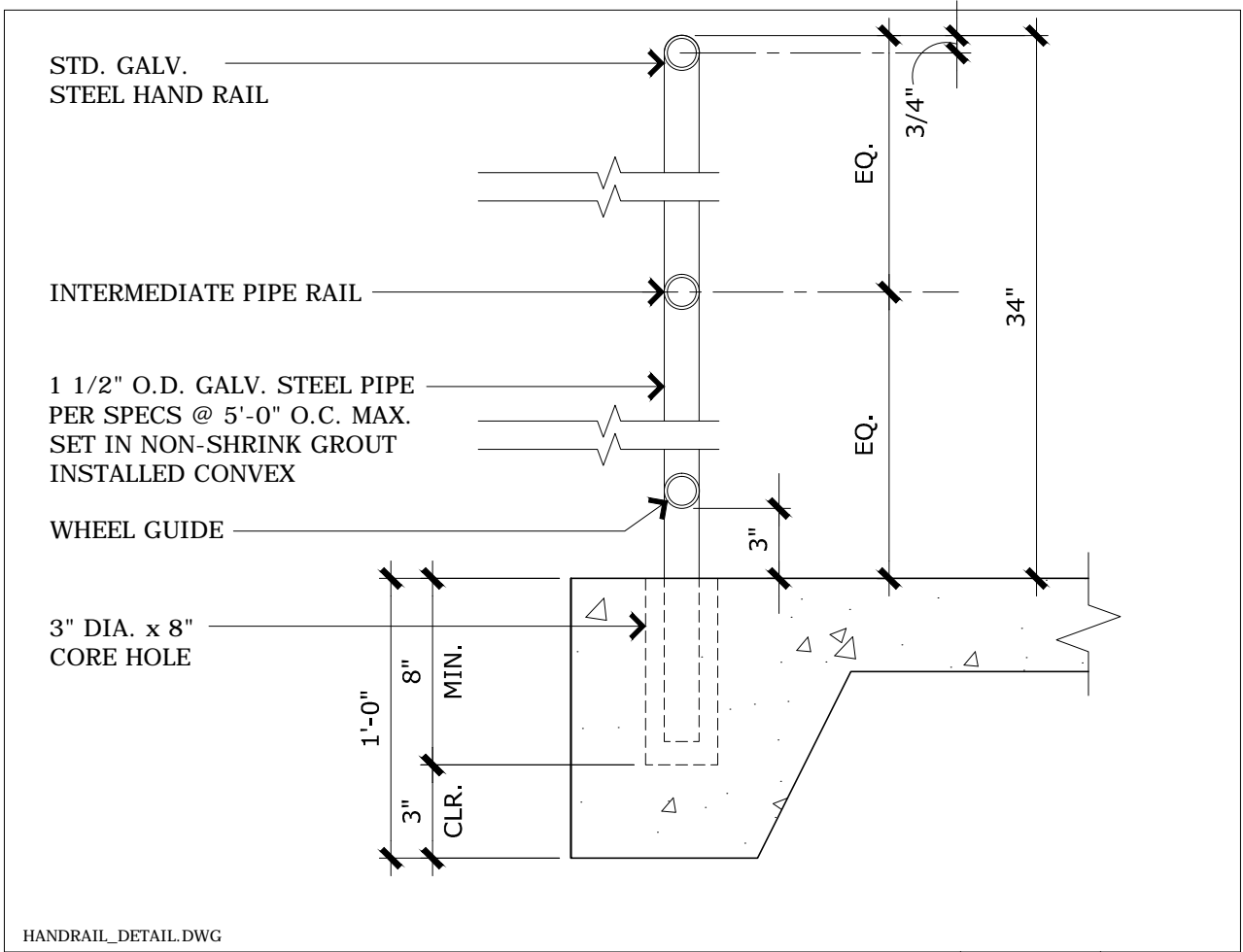
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DSA APN #: 04-116455
DSA File #: 36-42
Date: 05-28-2019
Project #: 01-49-77
Sheet #: **ASK-23**

Stamp:
LICENSED ARCHITECT
ROGER CLARKE
No. C-21340
Exp. 10-31-19
STATE OF CALIFORNIA



RAMP ELEVATION 1/4"=1'-0" **20**



HANDRAIL DETAIL 1-1/2"=1'-0" **21**

2

Description: Scale: **SEE DETAIL**

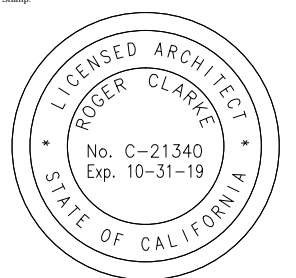
MORONGO SCHOOL DISTRICT

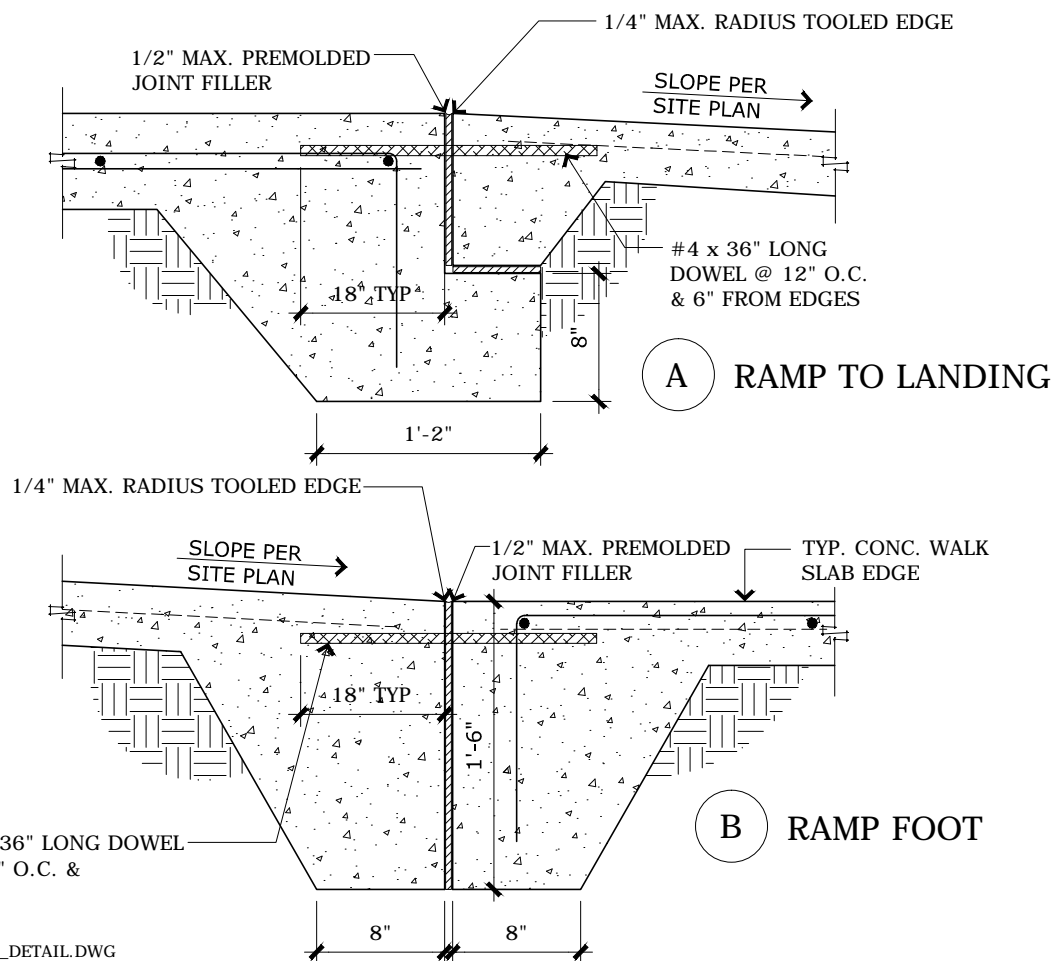
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DSA APN #:	04-116455
DSA File #:	36-42
Date:	05-28-2019
Project #:	1-49-77
Sheet #:	ASK-24



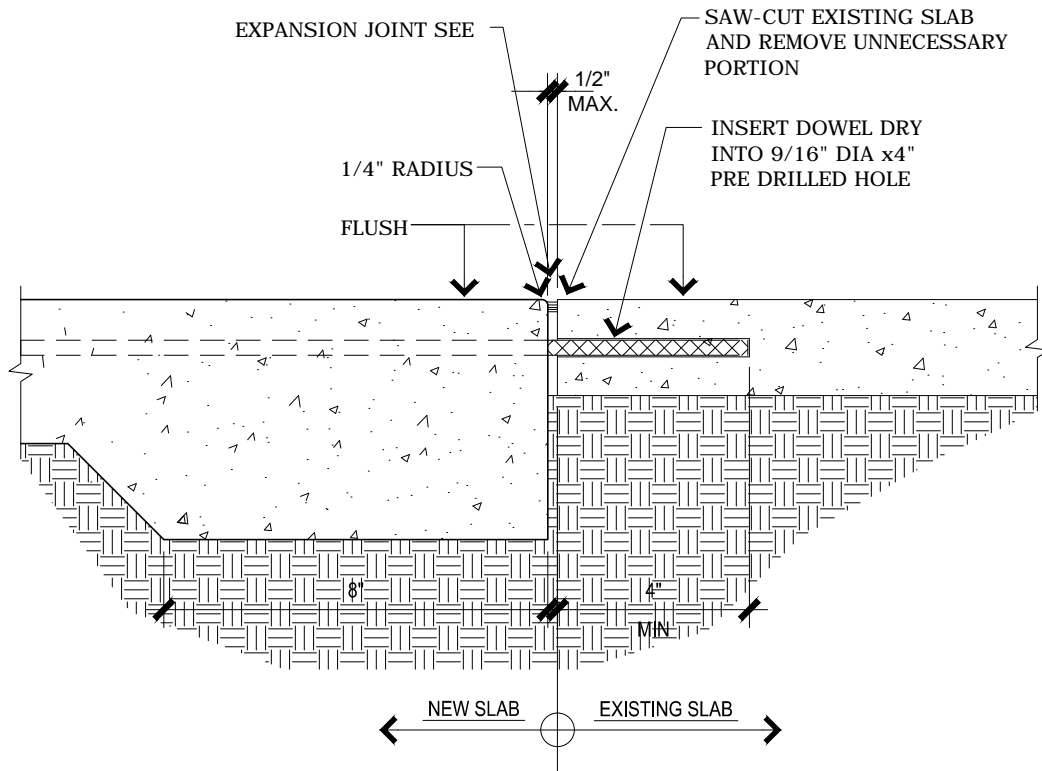


RAMP FOOTING_DETAIL.DWG

TYP. CONC. RAMP FOOTING

1"=1'-0"

22



TYP. CONC. JOINING EXISTING

3"=1'-0"

23

2

Description :

Scale:

SEE DETAIL

MORONGO SCHOOL DISTRICT

5/28/2019 2:09 PM

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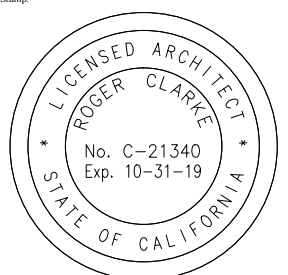
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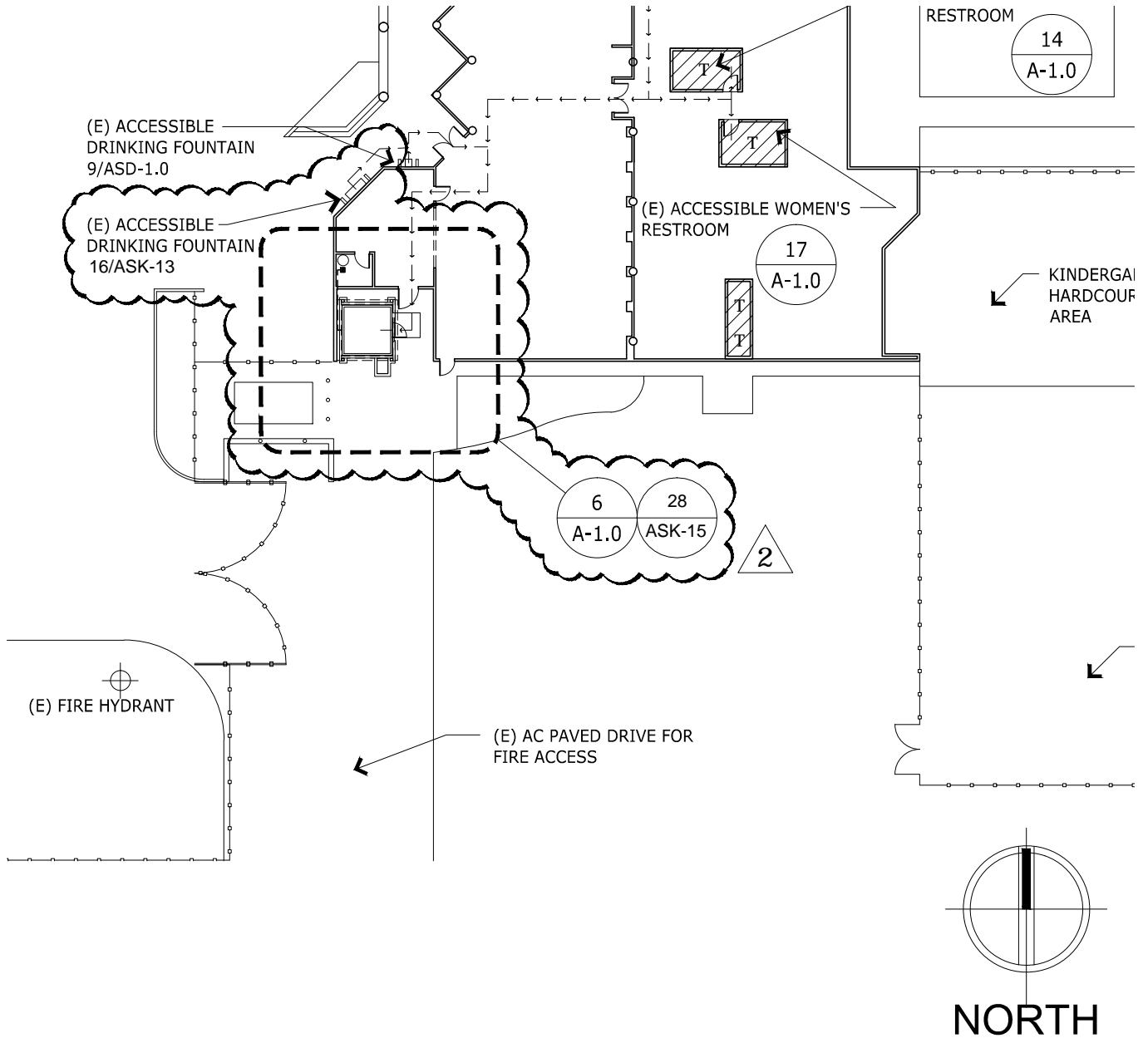
Date: 05-28-2019

Project #: 1-49-77

Sheet #:

ASK-25





OVERALL SITE PLAN

1/32"=1'-0"

1

OVERALL SITE PLAN / AS-1.0

SEE DETAIL

LANDERS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

5/21/2019 3:54 PM

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DSA APN #:

DSA File #:

36-42

Date:

05-21-2019

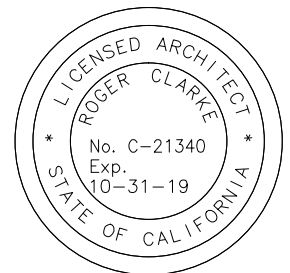
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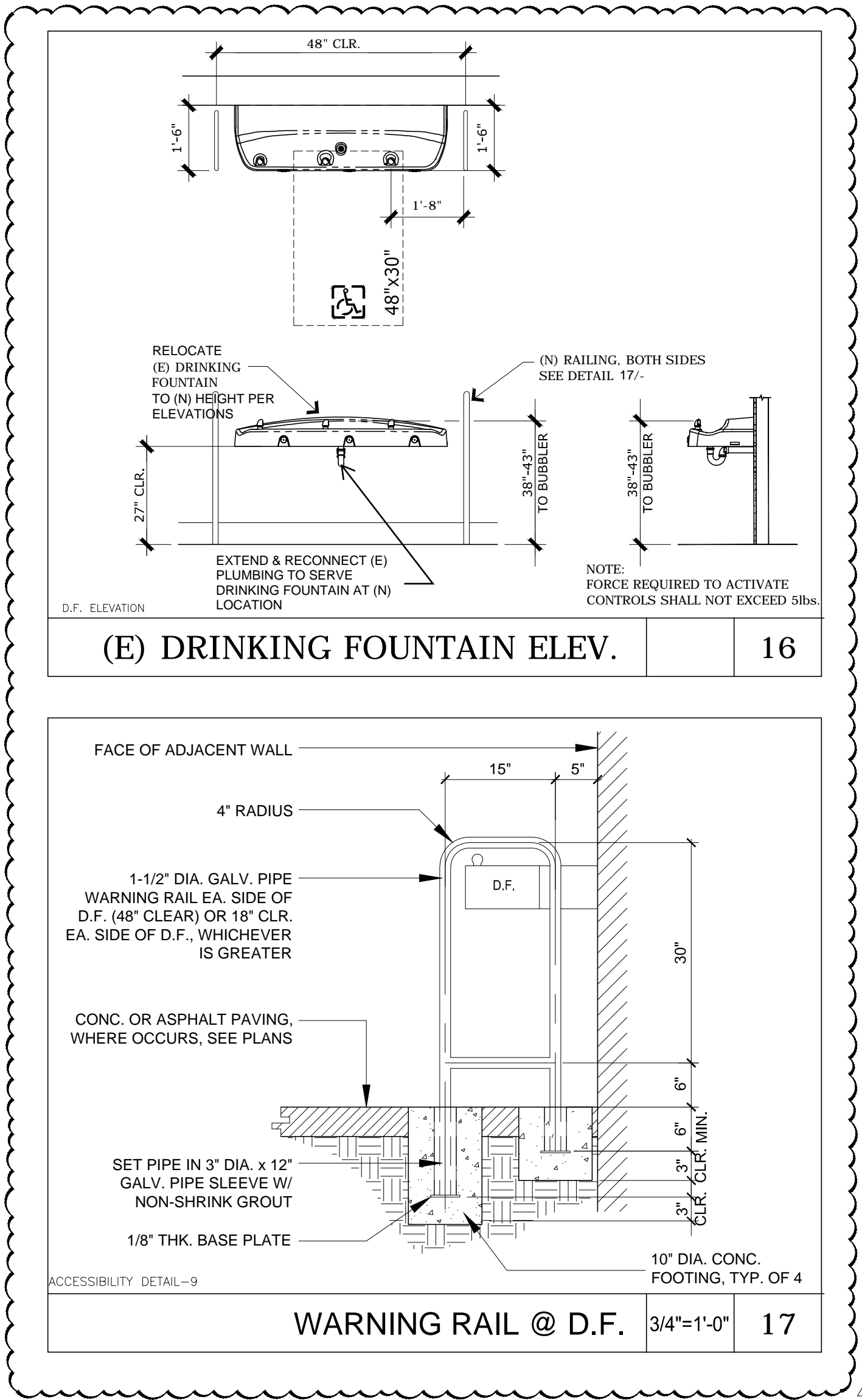
1-49-80

Sheet #

ASK-12

Stamp:





(E) DRINKING FOUNTAIN ELEV.

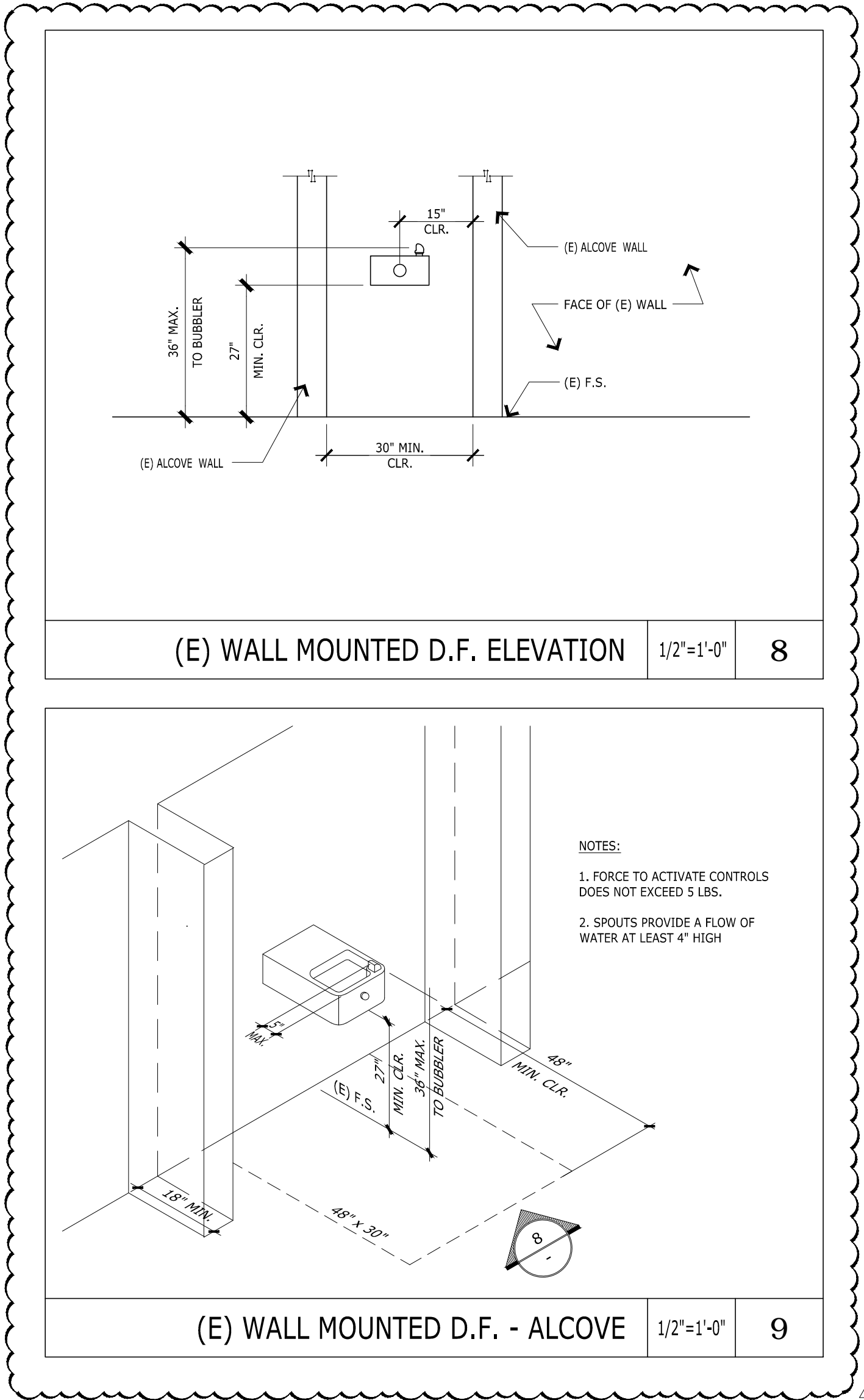
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WARNING RAIL @ D.F.

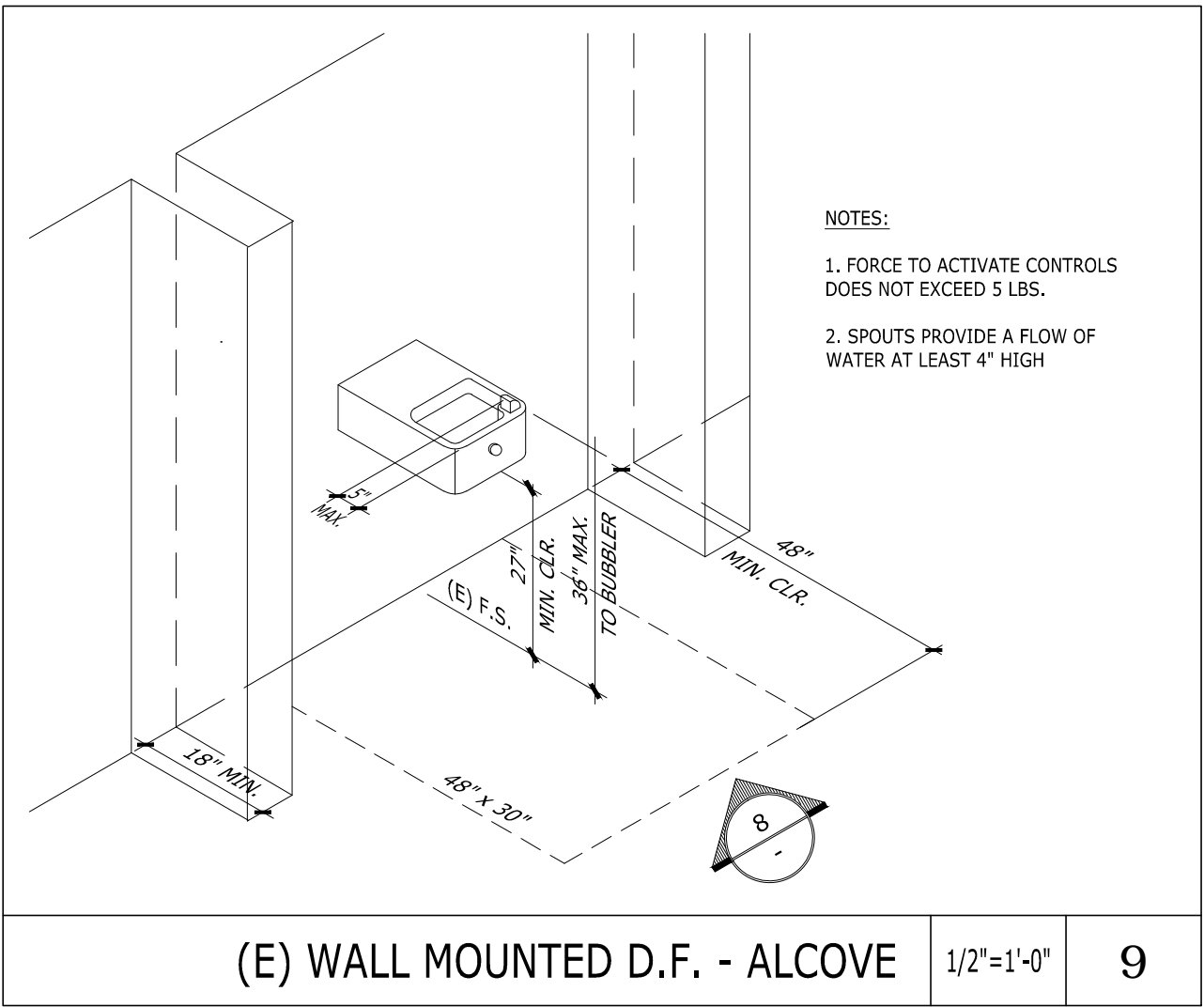
3/4"=1'-0"

17

2



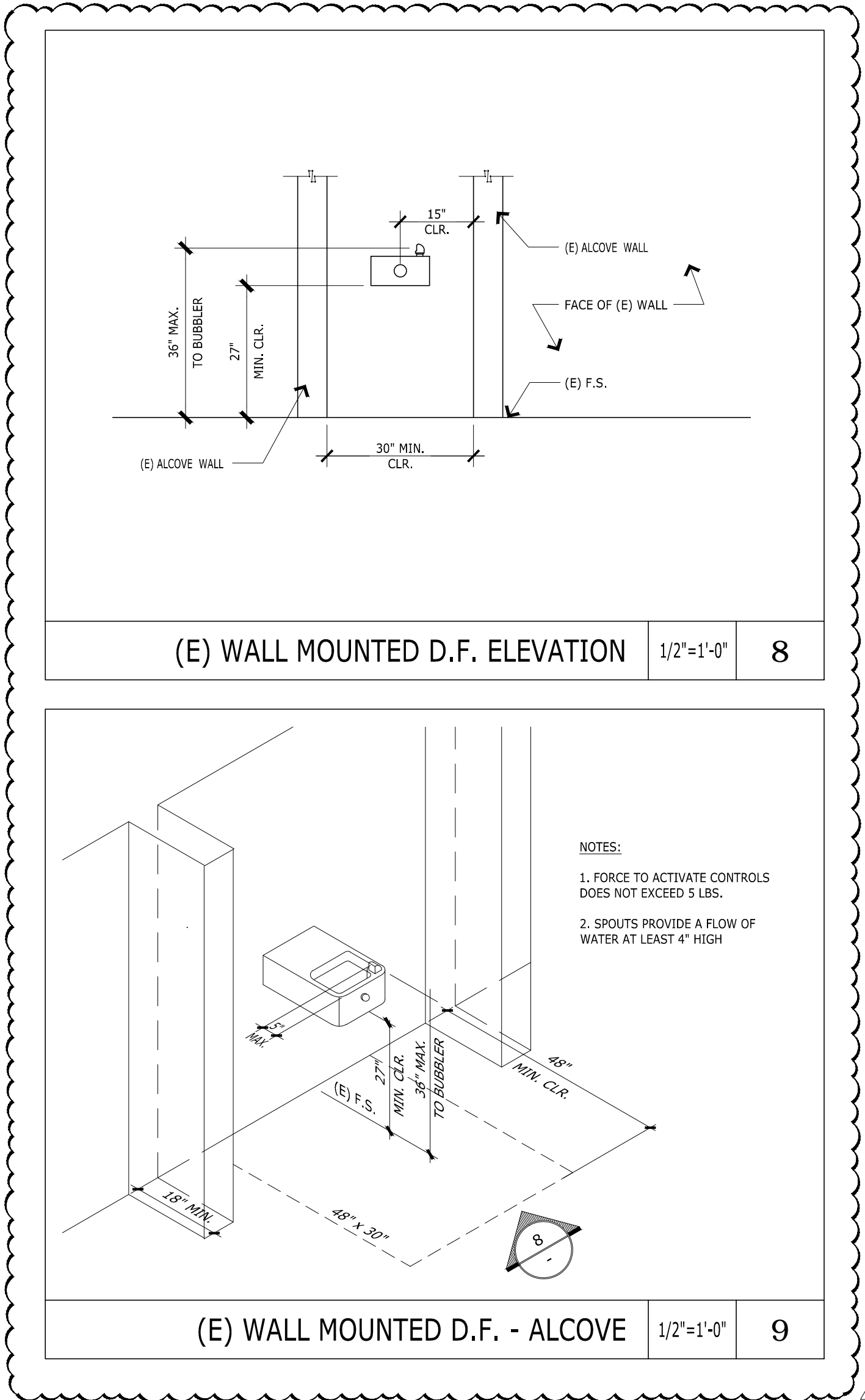
(E) WALL MOUNTED D.F. ELEVATION 1/2"=1'-0" 8



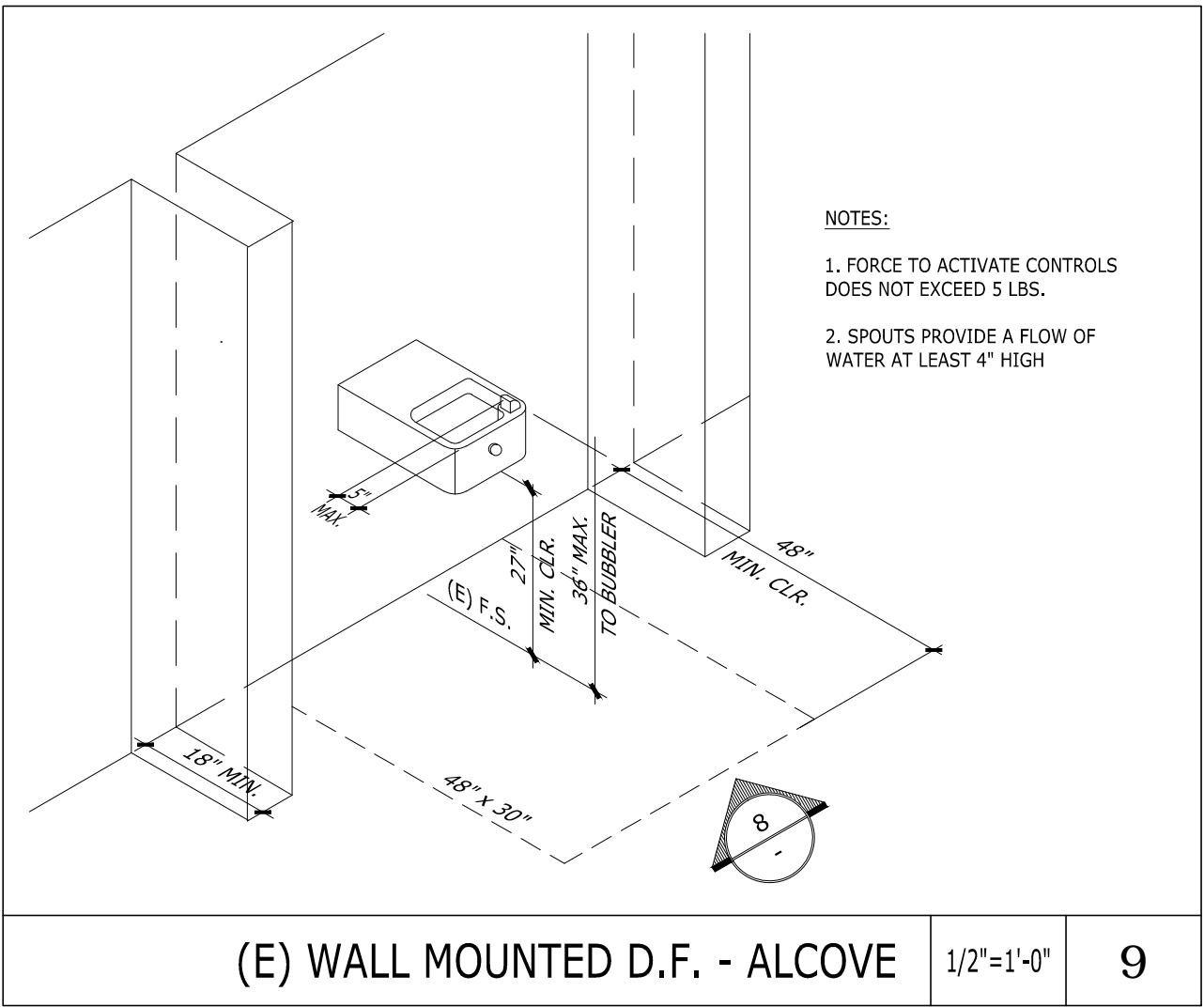
- NOTES:
1. FORCE TO ACTIVATE CONTROLS DOES NOT EXCEED 5 LBS.
 2. SPOUTS PROVIDE A FLOW OF WATER AT LEAST 4" HIGH

(E) WALL MOUNTED D.F. - ALCOVE 1/2"=1'-0" 9

2



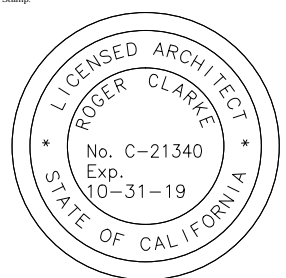
(E) WALL MOUNTED D.F. ELEVATION 1/2"=1'-0" 8

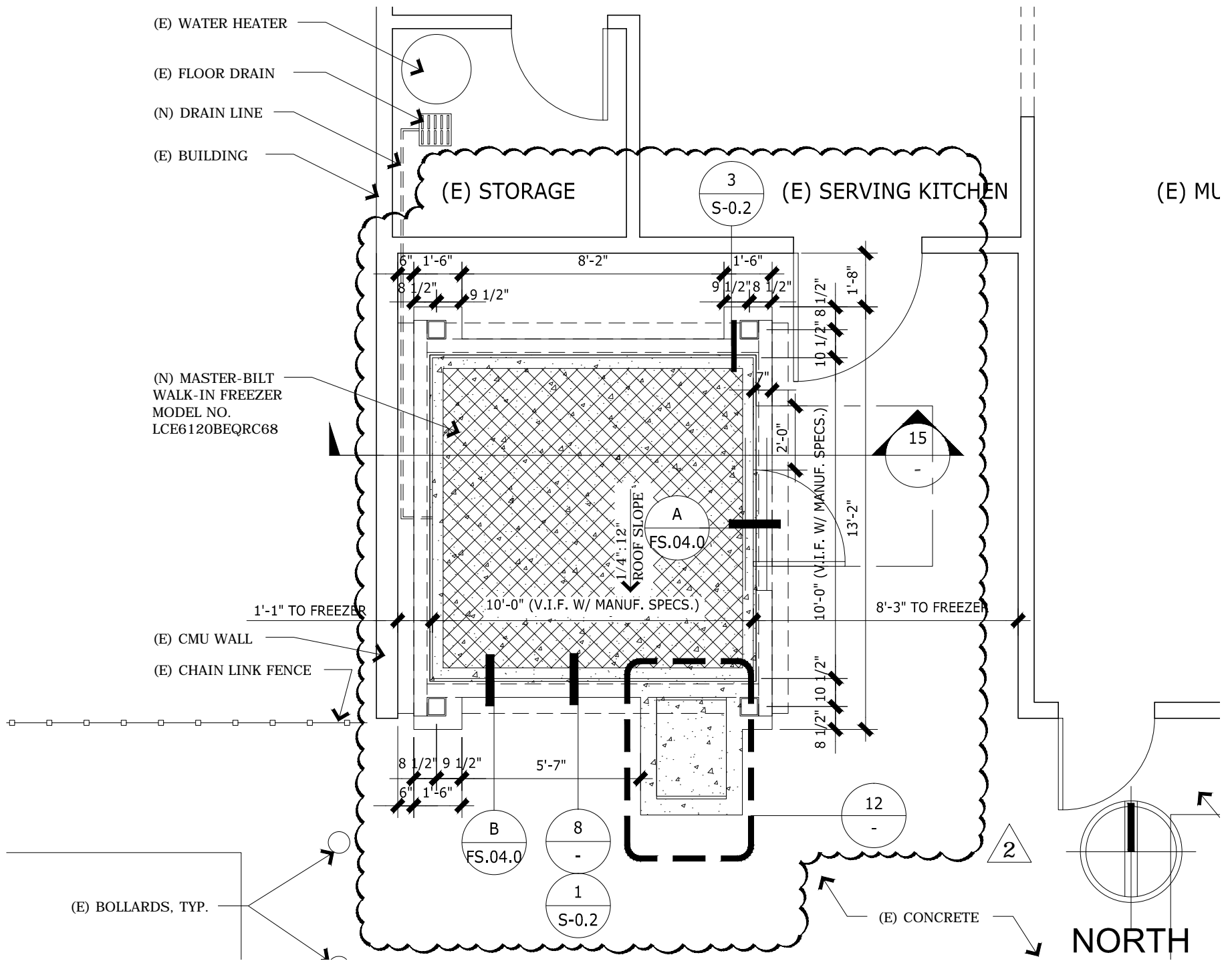


- NOTES:
1. FORCE TO ACTIVATE CONTROLS DOES NOT EXCEED 5 LBS.
 2. SPOUTS PROVIDE A FLOW OF WATER AT LEAST 4" HIGH

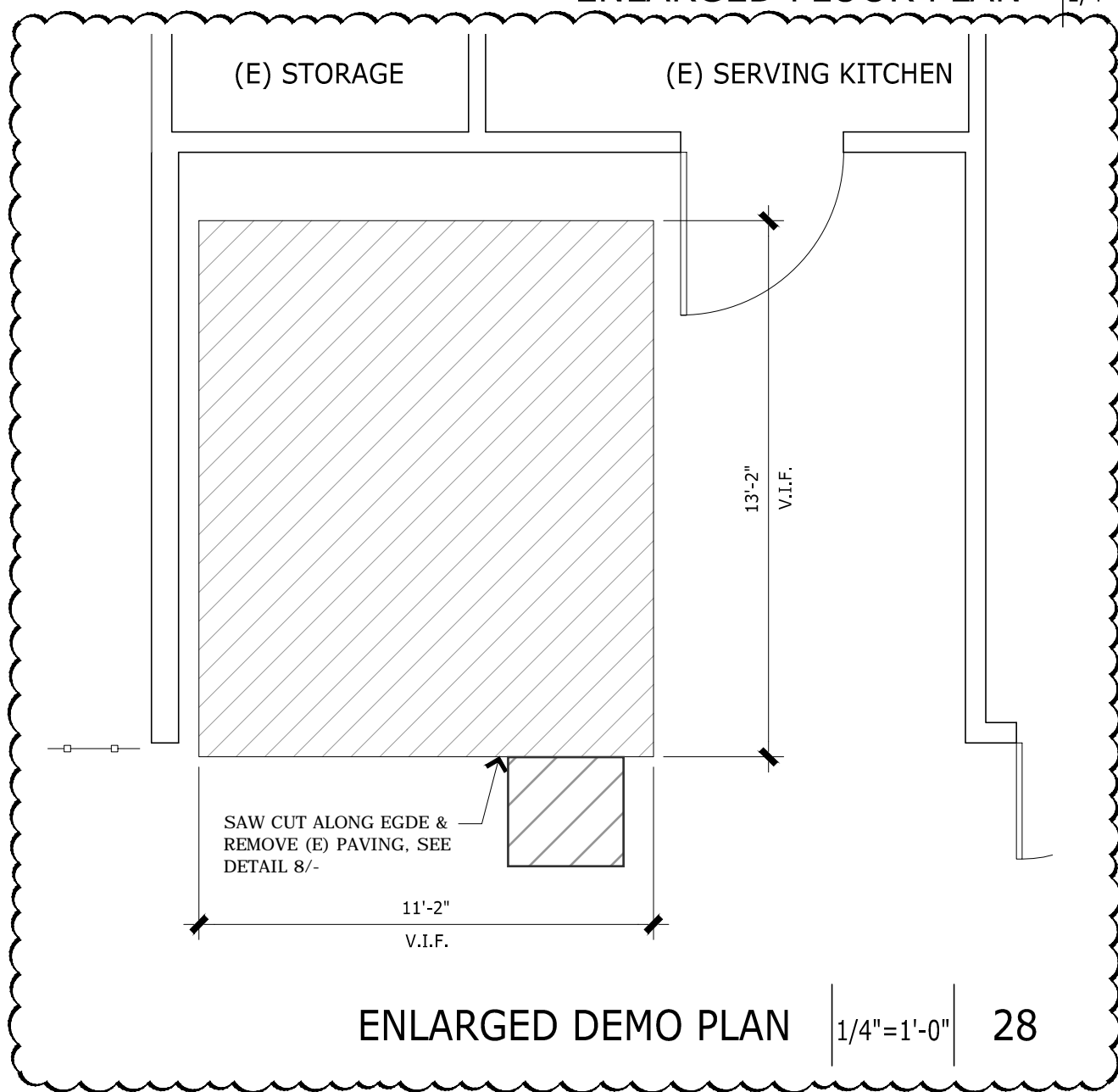
(E) WALL MOUNTED D.F. - ALCOVE 1/2"=1'-0" 9

2





ENLARGED FLOOR PLAN 1/4"=1'-0" 6



ENLARGED PLANS, SECTION, INT. ELEVATIONS & DETAILS / A-1.0

ON DETAIL

LANDERS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

5/21/2019 4:05 PM

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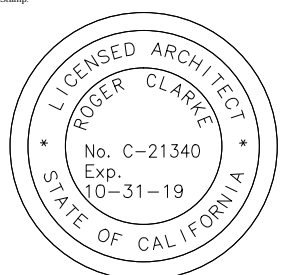
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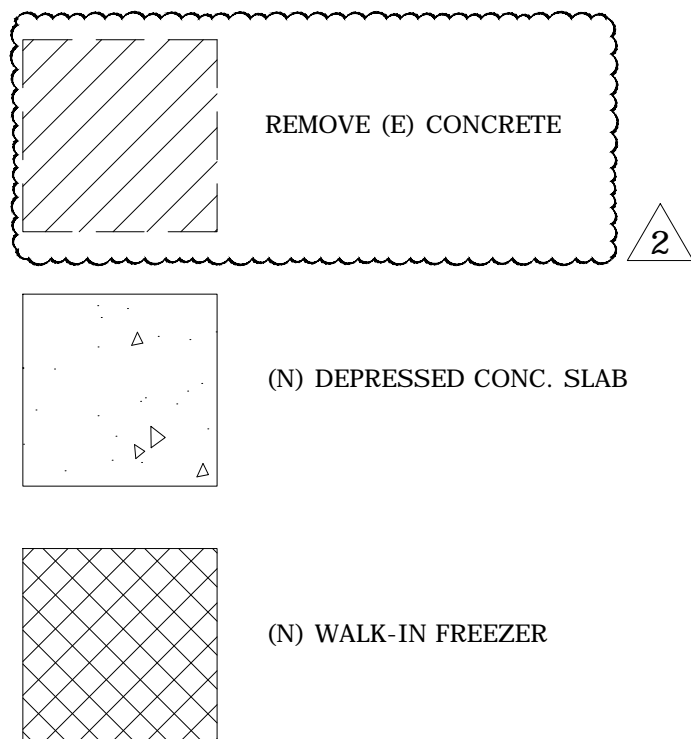
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Project #: 1-49-80

Sheet #: ASK-15

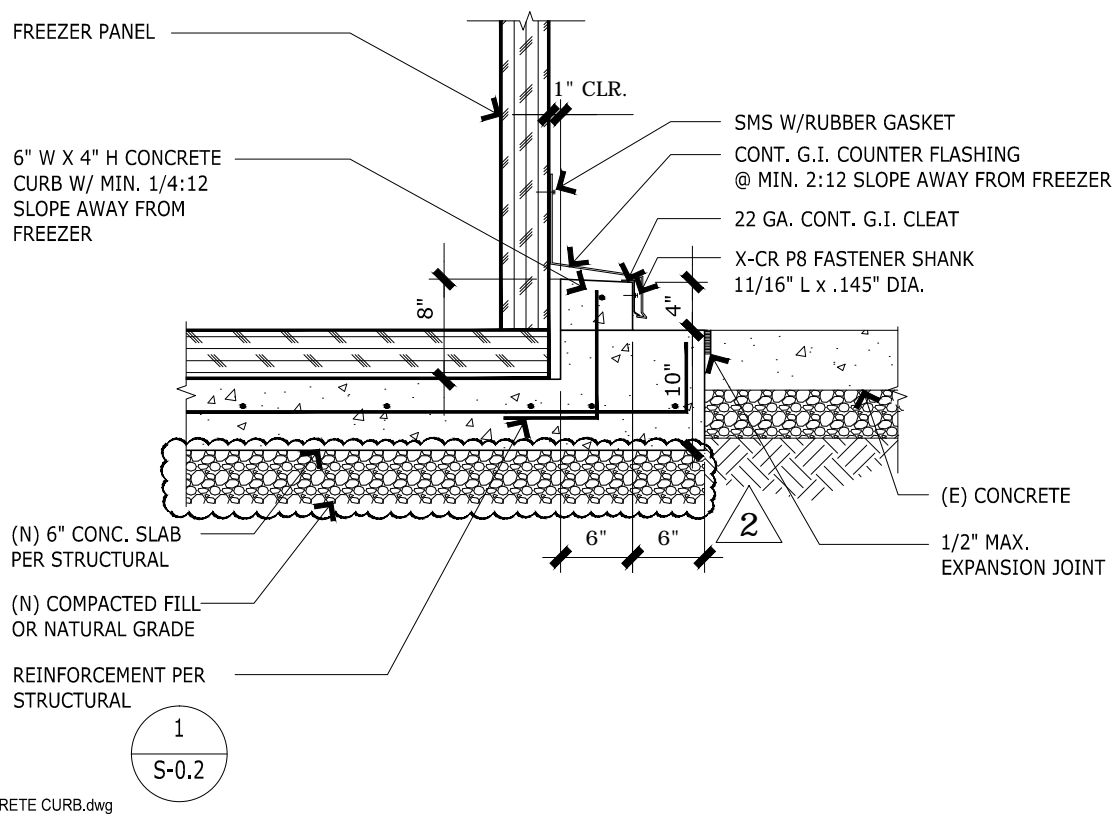


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14980_SITE_ENLARGED PLAN

LEGEND



(N) CONC. CURB FLASHING DETAIL | 3/4"=1'-0" | 8

ENLARGED PLANS, SECTION, INT. ELEVATIONS & DETAILS / A-1.0

ON DETAIL

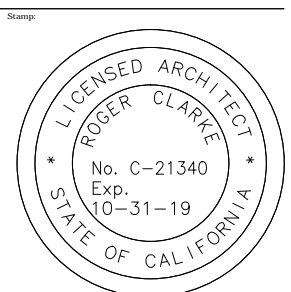
LANDERS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

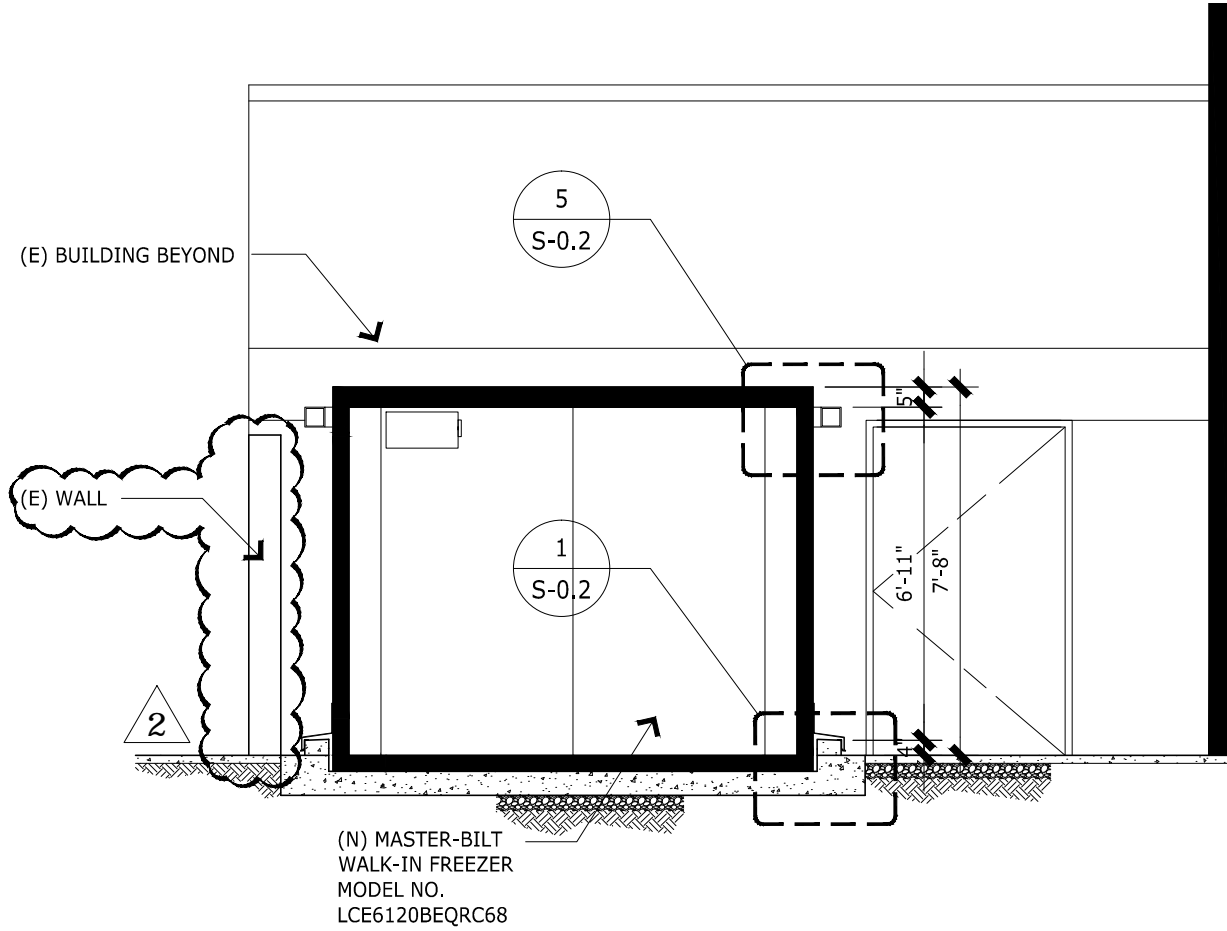
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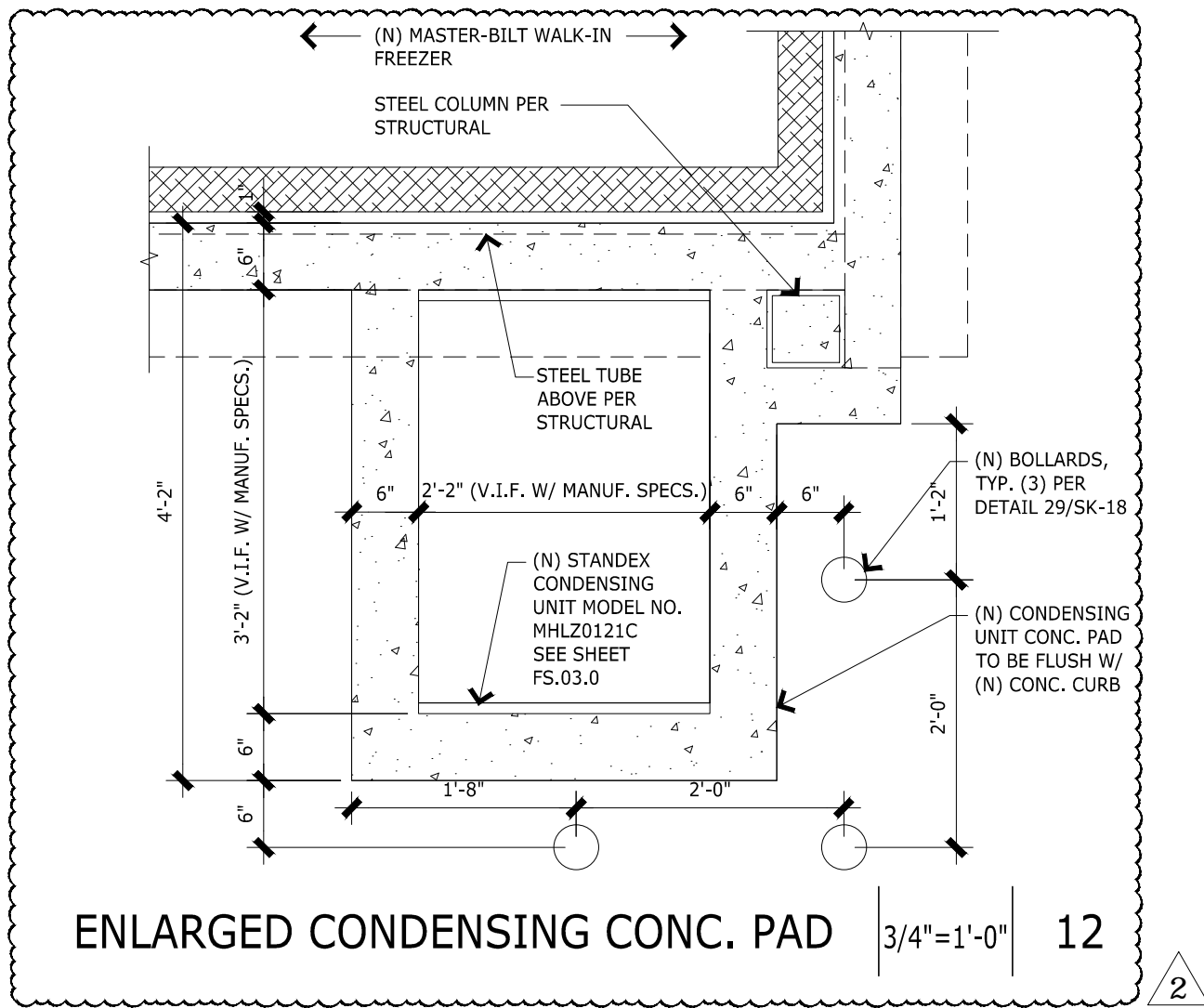
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DSA File #: 36-42
Date:
Project #: 1-49-80
Sheet #: **ASK-16**



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SECTION THROUGH FREEZER | 1/4"=1'-0" | 15



ENLARGED CONDENSING CONC. PAD | 3/4"=1'-0" | 12

LANDERS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

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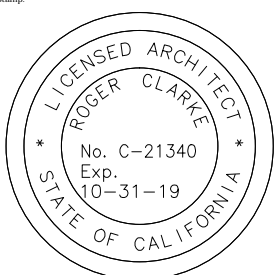
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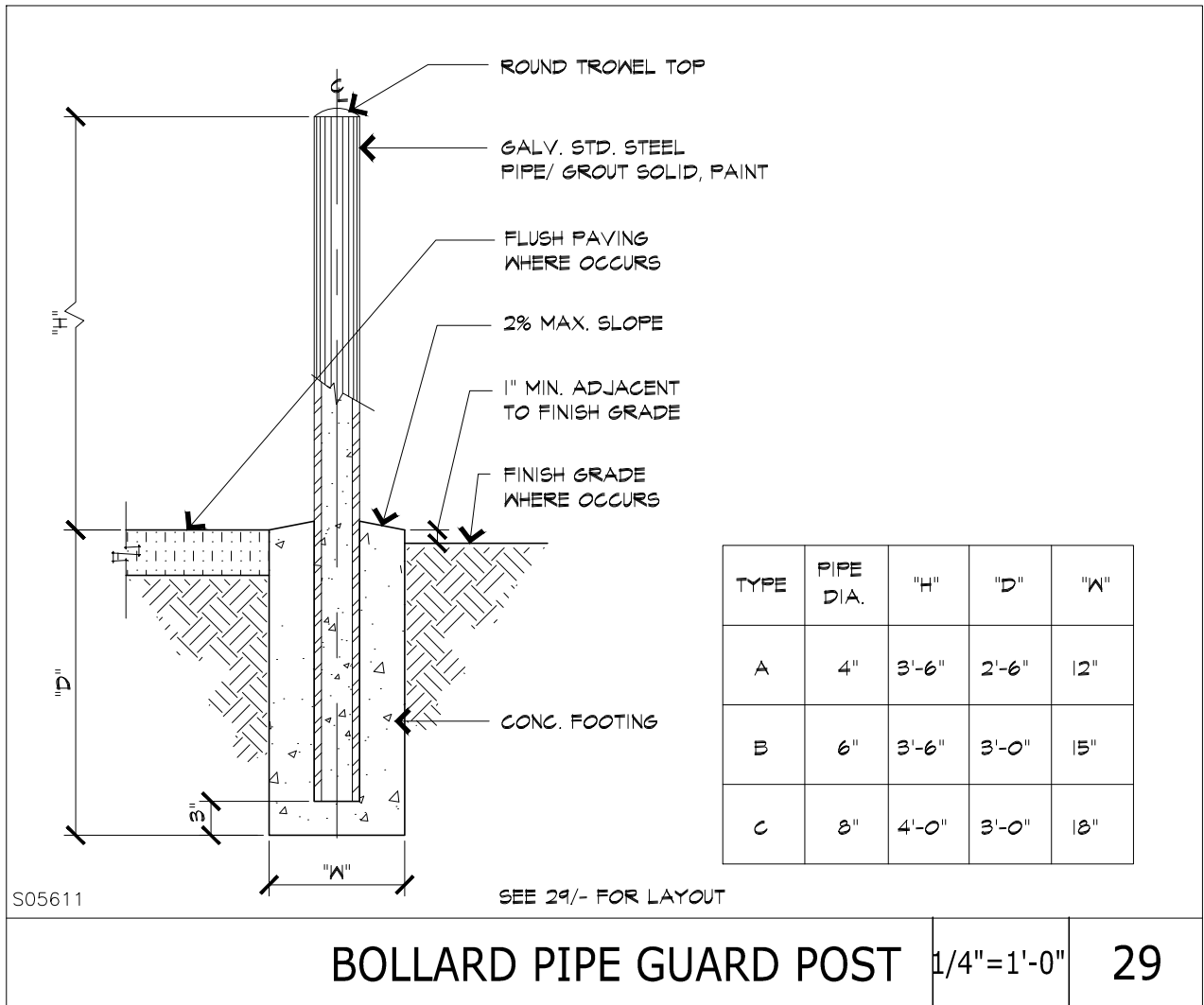
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Date:

Project #: 1-49-80

Sheet #: **ASK-17**





Description : SITE DETAILS / ASD- 1.0

Scale: SEE DETAIL

LANDERS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

DSA APN #:

DSA File #: 36-42

Date: 05-28-2019

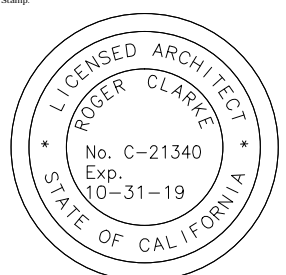
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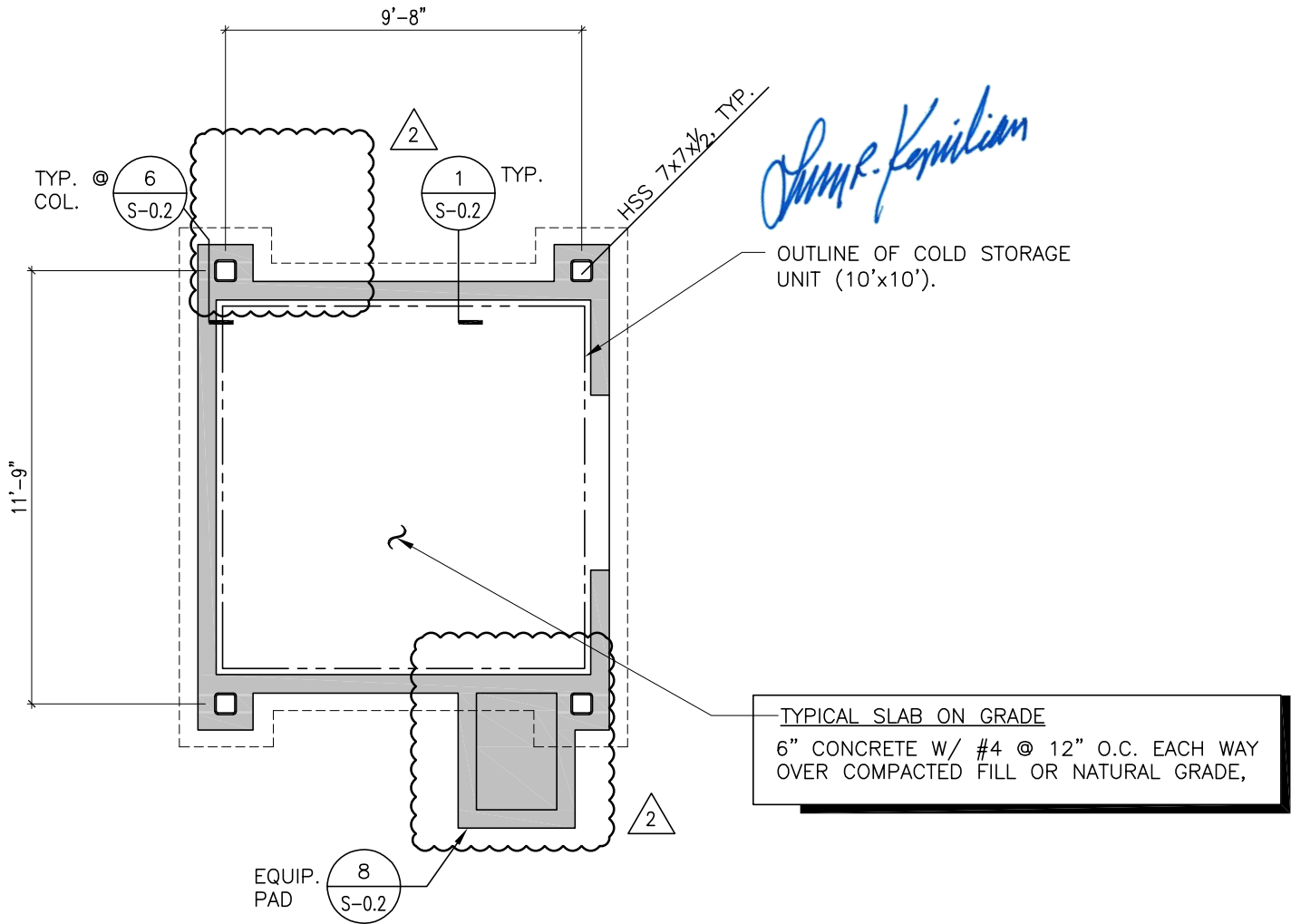
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ASK-19






CONSULTANT



**KNA
STRUCTURAL
ENGINEERS**

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203.488



ADDENDUM #2

COLD STORAGE FRAME FOUNDATION PLAN - S-0.1

N.T.S

LANDERS ELEMENTARY SCHOOL

**WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT**

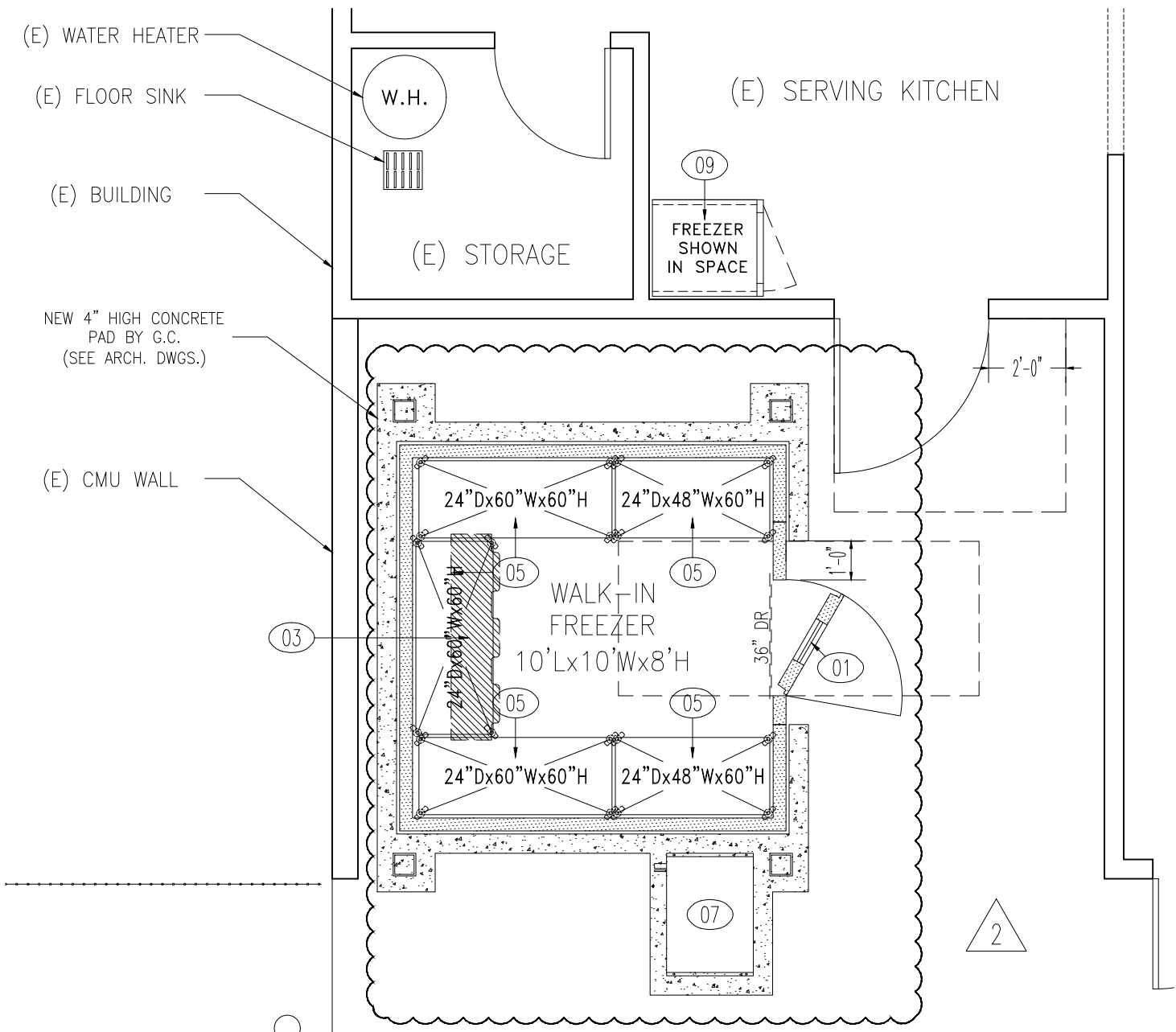
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Date:	05-21-2019
Project #:	1-49-80
Sheet #:	SSK-2.1





DIELI MURAWKA HOWE			
Food Service Design Consultants			Phone: 619.285.1189
P.O. BOX 28197			
San Diego, CA 92128			Design By: RICHARD DIELI

Description: **FOODSERVICE EQUIPMENT FLOOR PLAN - FS.01.0** Scale: **1/4" = 1'-0"**

LANDERS ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

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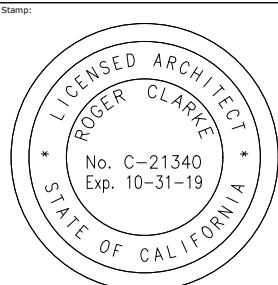
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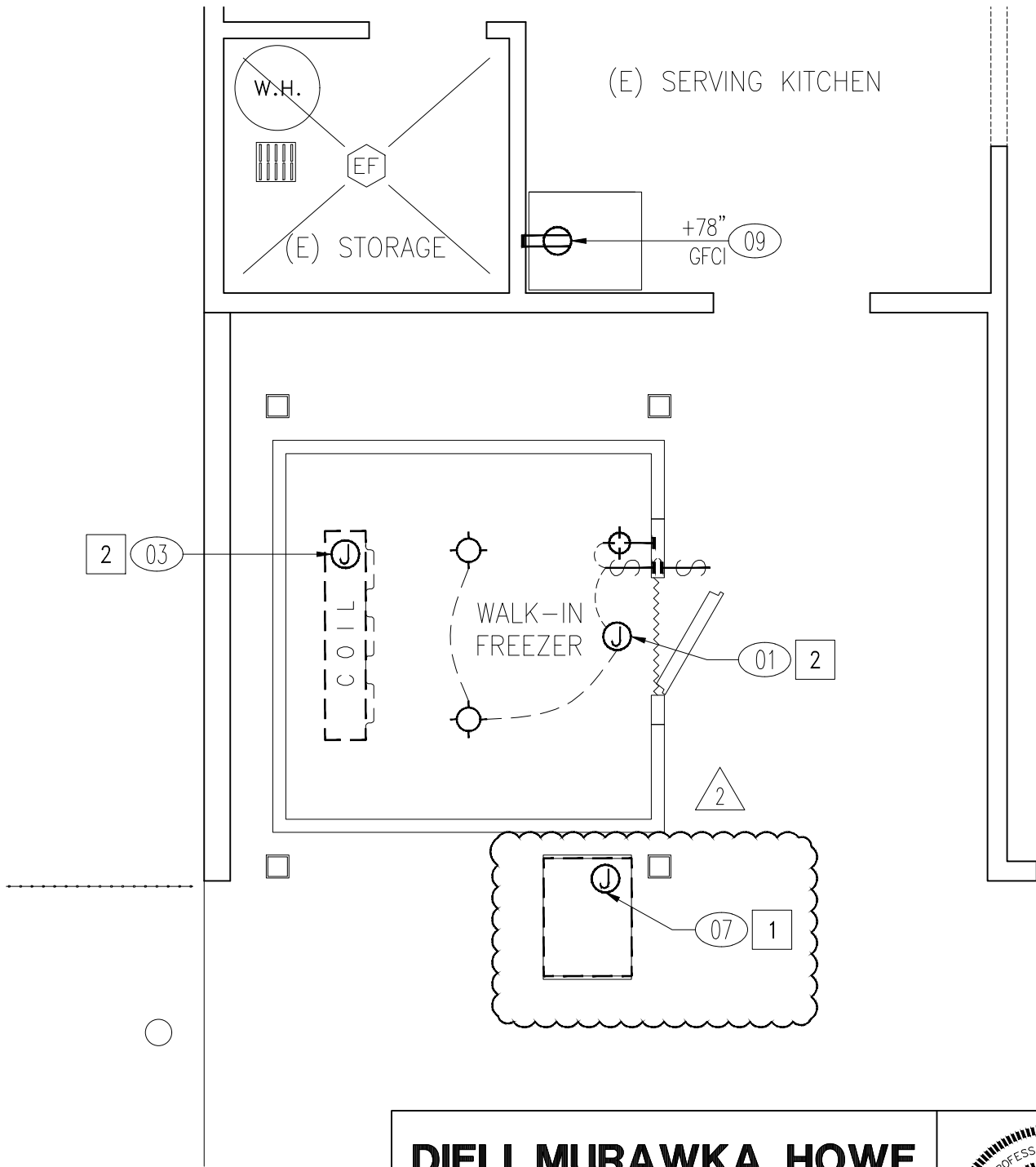
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Project #: **1-49-80**

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DIELI MURAWKA HOWE

Food Service Design Consultants
 P.O. BOX 28197
 San Diego, CA 92128

Phone: 619.285.1189

Design By: RICHARD DIELI



FOODSERVICE EQUIPMENT ELECTRICAL PLAN - FS.02.0

Scale: 1/4" = 1'-0"

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WALK-IN FREEZER INSTALLATION MORONGO SCHOOL DISTRICT

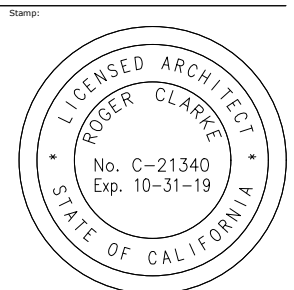
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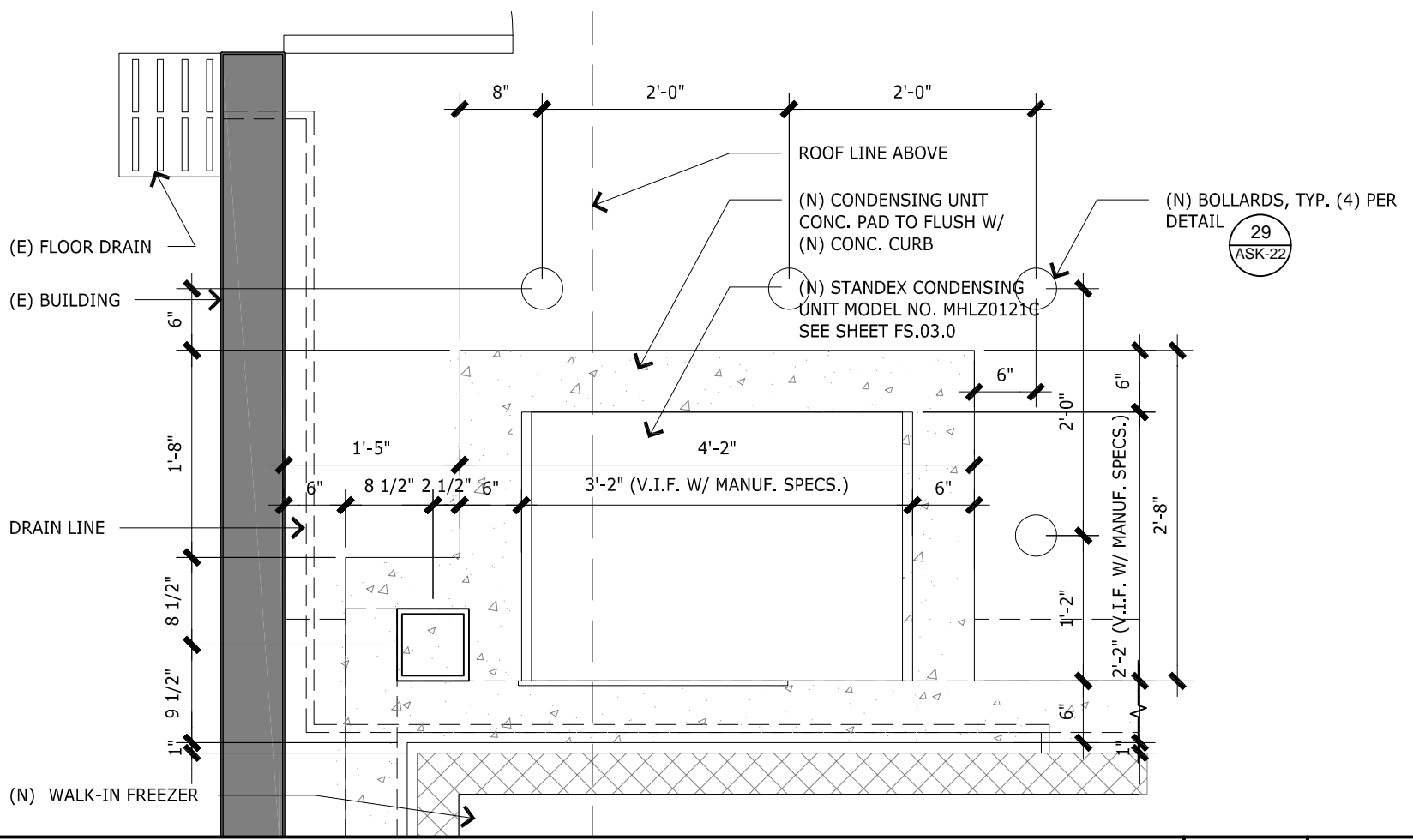
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DSA APN #:
 DSA File #: 36-42
 Date: 04-25-2019
 Project #: 1-49-80
 Sheet #:

FSSK-2.0





ENLARGED CONDENSING CONCRETE PAD | 3/4"=1'-0" | 12

ENLARGED CONDENSING UNIT PAD 12/A-1.0

YUCCA VALLEY ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

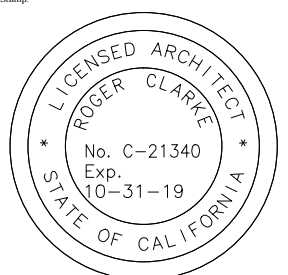
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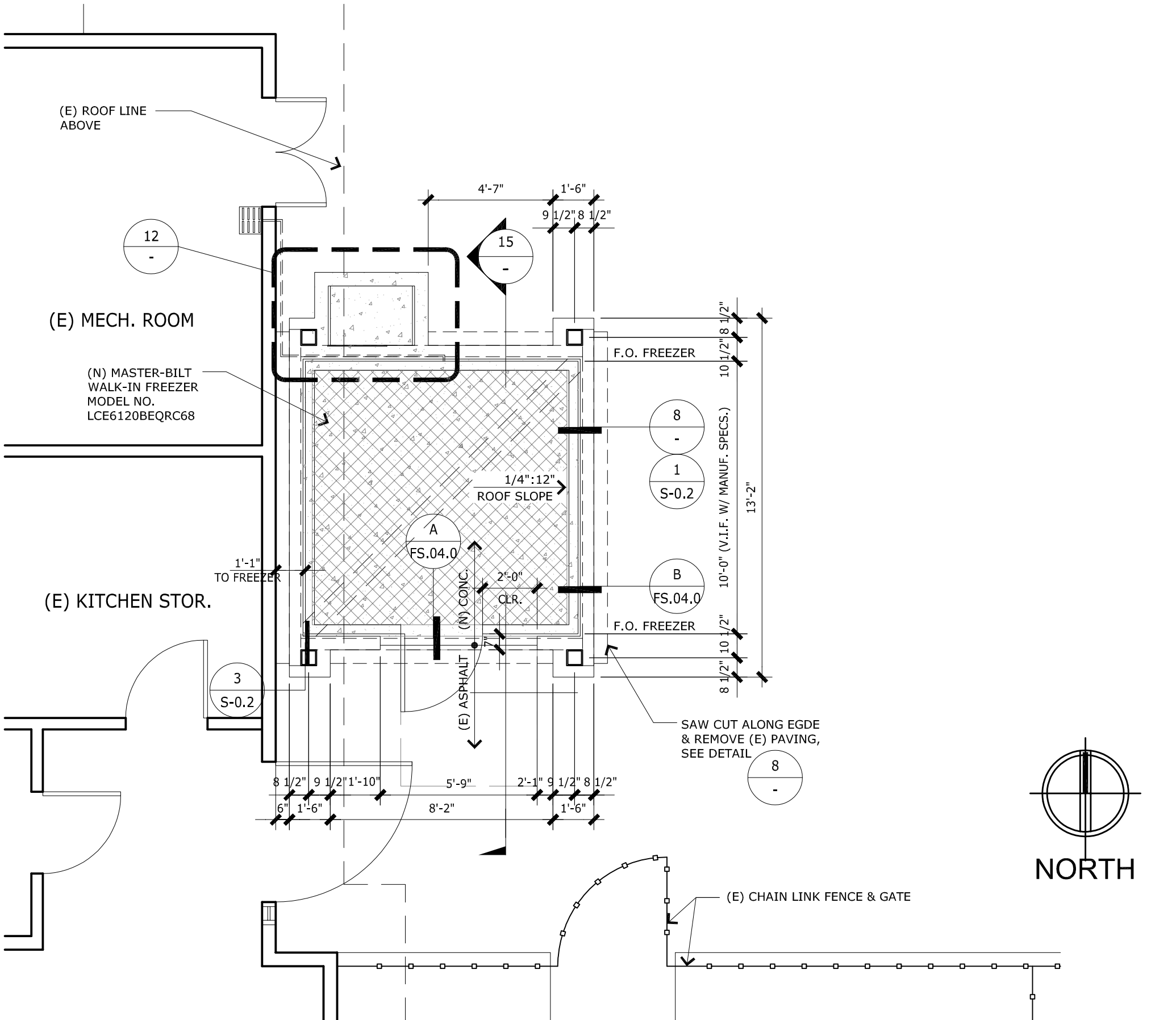
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Date: _____
Project #: 1-49-80
Sheet #: ASK-20

AS NOTED





ENLARGED SITE PLAN | 1/4"=1'-0" | 6

ENLARGED SITE PLAN 6/A-1.0

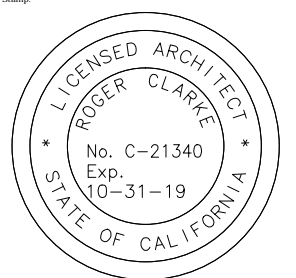
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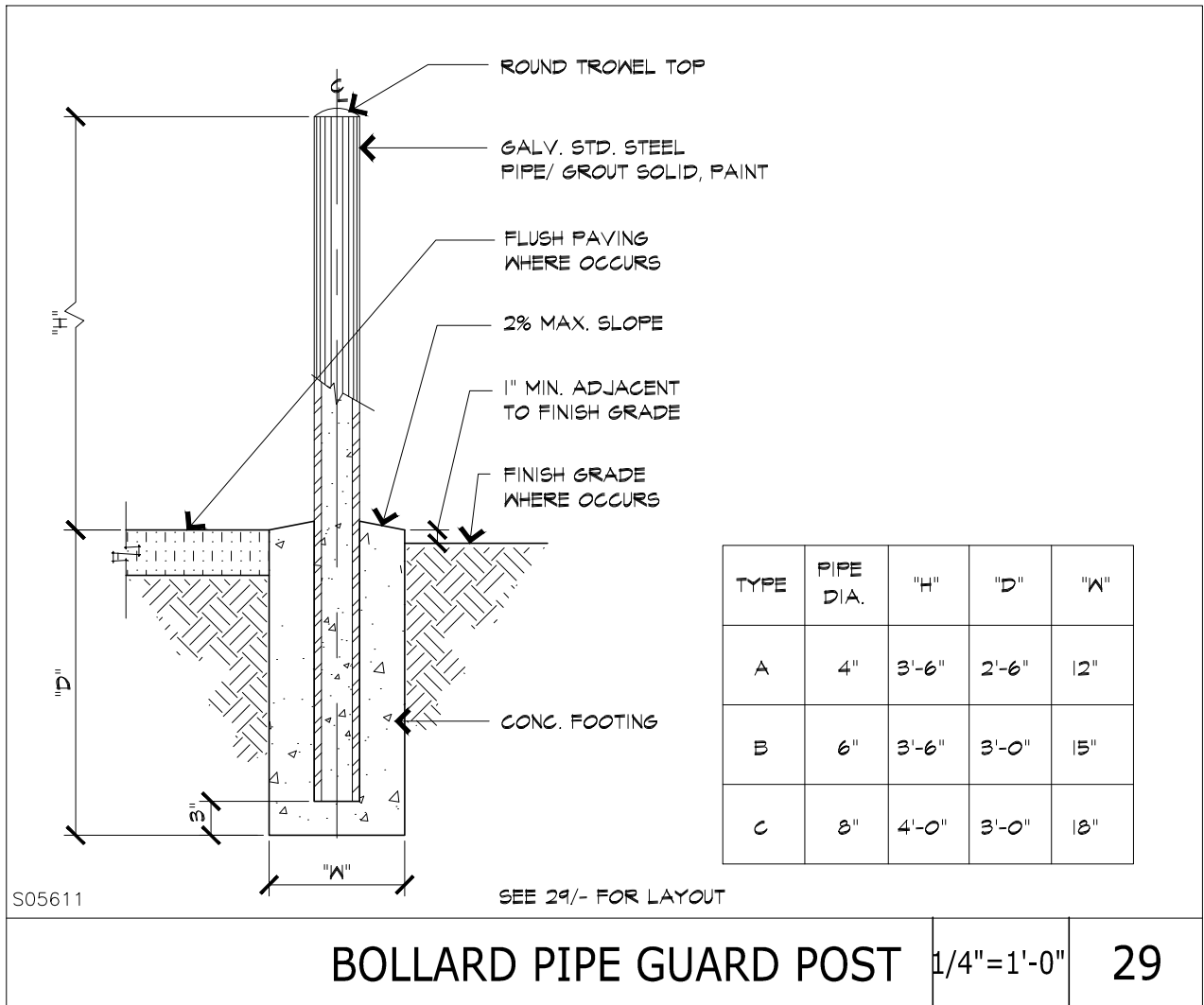
YUCCA VALLEY ELEMENTARY SCHOOL

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Project #:	1-49-80
Sheet #:	ASK-21





SITE DETAILS / ASD-1.0

SEE DETAIL

YUCCA VALLEY ELEMENTARY SCHOOL

WALK-IN FREEZER INSTALLATION
MORONGO SCHOOL DISTRICT

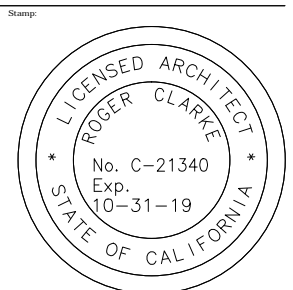
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ASK-22