INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
BUCKNER DRIVE ROAD SHEETS	
R1	COVER SHEET
R2	LEGEND SHEET
R3	GENERAL NOTE SHEET
R4–R6	MISCELLANEOUS DETAILS
R7–R8	TYPICAL CROSS SECTIONS
R9–R14	REMOVAL, CONSTRUCTION, AND PROFILE SHEETS
R15–R16	GRADING PLAN SHEET
R17–R24	MAINTAINING TRAFFIC SHEETS
GENERAL SITE SHEETS	
GS–001	GENERAL SITE LEGEND
GS–110	GENERAL SITE DETAILS
SYSTEX SITE SHEETS	
SS–104	SOIL BORING PLAN
SS–105–SS–106	SOIL BORING LOGS
SS–110–SS–111	EXISTING CONDITION PLAN
SS–150–SS–152	GRADING PLANS
SS–160	STORMWATER DITCH PLAN
SS–170	SOIL EROSION CONTROL PLAN
NEXTHERMAL SITE SHEETS	
NS–104	SOIL BORING PLAN
NS–110–NS–111	EXISTING CONDITION PLAN
NS–150	GRADING PLAN
NS–151	DITCH TYPICAL SECTIONS
NS–160	SITE STORM WATER DITCH PLAN
NS–170	SOIL EROSION CONTROL PLAN
COLUMBIA SITE SHEETS	
CS–104 – CS–105	SOIL BORING PLANS
CS–104	EXISTING CONDITION PLAN
CS–150	GRADING PLAN
CS–170	SOIL EROSION CONTROL PLAN
WK KELLOGG AIRPORT SITE SHEETS	
A1	AIRPORT CONSTRUCTION SAFETY & PHASING PLAN
A2	AIRPORT CONSTRUCTION SAFETY PHASING NOTES
A3–A4	AIRPORT GRADING PLAN SHEETS

M.D.O.T. STANDARD PLANS	
TITLE	PLAN NO.
DRAINAGE STRUCTURES	*R–1–G
COVER B	R–10–D
COVER K	R–15–F
DRIVEWAY OPENINGS & APPROACHES AND CONCRETE SIDEWALKS	R–29–I
CONCRETE CURB AND CONCRETE CURB & GUTTER	R–30–G
GRANULAR BLANKET, UNDERDRAINS, OUTLET ENDINGS FOR UNDERDRAINS, AND SEWER BULKHEADS	R–80–E
UTILITY TRENCHES	R–83–C
PRECAST CONCRETE END SECTION FOR PIPE CULVERT	R–86–E
STEEL END SECTION	R–88–D
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R–96–E
SEEDING & TREE PLANTING	R–100–H
GRADING CROSS–SECTIONS	R–105–D
*DENOTES SPECIAL DETAIL	
M.D.O.T. TRAFFIC STANDARD PLANS	
TITLE	PLAN NO.
GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS	*WZD–100–A
TEMPORARY TRAFFIC CONTROL DEVICES	*WZD–125–E

GENERAL PROVISIONS

THE IMPROVEMENTS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE PROPOSAL AND ACCOMPANYING SPECIFICATIONS FOR THIS PROJECT INCLUDING THE 2012 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, AASHTO'S 2011 A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, AND MDOT'S 2017 GUIDELINES FOR GEOMETRICS ON LOCAL AGENCY PROJECTS, BOTH 3R AND 4R GUIDELINES.

PAVEMENT MARKING AND PLACING OF TRAFFIC CONTROL SIGNS SHALL BE DONE IN ACCORDANCE WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, 2011 EDITION. THIS WORK WILL BE DONE PRIOR TO THE FINAL ACCEPTANCE OF THIS PROJECT.

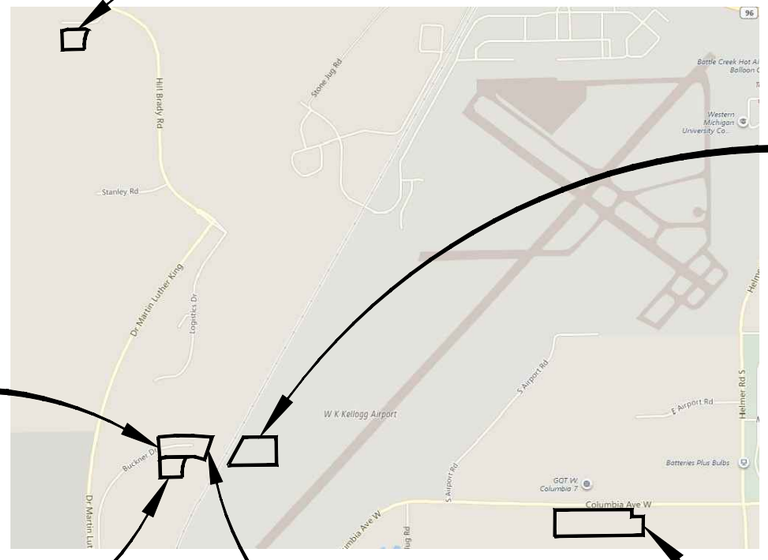
THE LOCATION OF ALL PUBLIC UTILITIES SHOWN ON THESE PLANS IS TAKEN FROM THE BEST AVAILABLE DATA. THE CITY OF BATTLE CREEK WILL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATION FROM THE LOCATIONS SHOWN. PURSUANT TO ACT 174 OF THE P.A. OF 2013, AS A CONDITION OF THIS CONTRACT, NOTICE SHALL BE GIVEN TO MISS DIG PRIOR TO UNDERGROUND WORK TO BE PERFORMED IN ACCORDANCE WITH THIS CONTRACT, PHONE (800) 482–7171. UTILITY SERVICE CONNECTIONS ARE NOT SHOWN ON THE PLANS AND ARE NOT THE RESPONSIBILITY OF THE CITY.

THE ELEVATIONS ON THESE PLANS ARE BASED ON NAVD 1988 VERTICAL DATUM.

CITY OF BATTLE CREEK

BUCKNER DRIVE
EXTENSION TO WK KELLOGG AIRPORT &
SITE IMPROVEMENTS SHEETS FOR
SYSTEX, NEXTHERMAL, COLUMBIA AND WK KELLOGG AIRPORT

SITE IMPROVMENTS
NEXTHERMAL
SHEETS NS-104 - NS-170



SITE IMPROVEMENTS
WK KELLOGG AIRPORT
SHEETS A1 - A4

BUCKNER DRIVE
SHEETS R1 - R24
POB STA 20+00

SITE IMPROVEMENTS
SYSTEX
SHEETS SS-104 - SS-170

LOCATION MAP
N.T.S.

BUCKNER DRIVE
POE STA 29+00

SITE IMPROVEMENTS
COLUMBIA
SHEETS CS-104 - CS-170

CITY OF BATTLE CREEK

MARK BEHNKE
• MAYOR •

DAVE WALTERS
• VICE MAYOR •

VICTORIA HOUSER
• CITY CLERK •

JOHN GRIFFIN
LYNN WARD GRAY
KATE FLORES
CHRISTOPHER SIMMONS
SUSAN BALDWIN
KAYTEE FARIS
SHERRY SOFIA
• CITY COMMISSION •

CHRISTOPHER DOPP, P.E.
• DEPARTMENT OF PUBLIC WORKS DIRECTOR •

CARL E. FEDDERS, P.E.
• CITY ENGINEER •

CITY OF BATTLE CREEK

CONTRACT FOR: PAVEMENT REMOVAL, CURB REMOVAL, HMA ROAD CONSTRUCTION, CURB PLACEMENT, STORM SEWER, SIGNING, RESTORATION ON BUCKNER DRIVE. SITE GRADING ON THE SYSTEX, NEXTHERMAL, COLUMBIA AND WK KELLOGG AIRPORT PROPERTIES.

OHM Advancing Communities®

Engineering Advisors

34000 Plymouth Road | Livonia, MI 48150
p (734) 522-6711 | f (734) 522-6427

PREPARED UNDER THE SUPERVISION OF:

STATE OF MICHIGAN
ALAN L. HALBEISEN
ENGINEER NO. 29715
LICENSED PROFESSIONAL ENGINEER

29715
Registration No.

ALAN HALBEISEN, P.E.

Date

CITY OF BATTLE CREEK APPROVAL:

CHRIS DOPP, P.E. – DIRECTOR OF PUBLIC WORKS

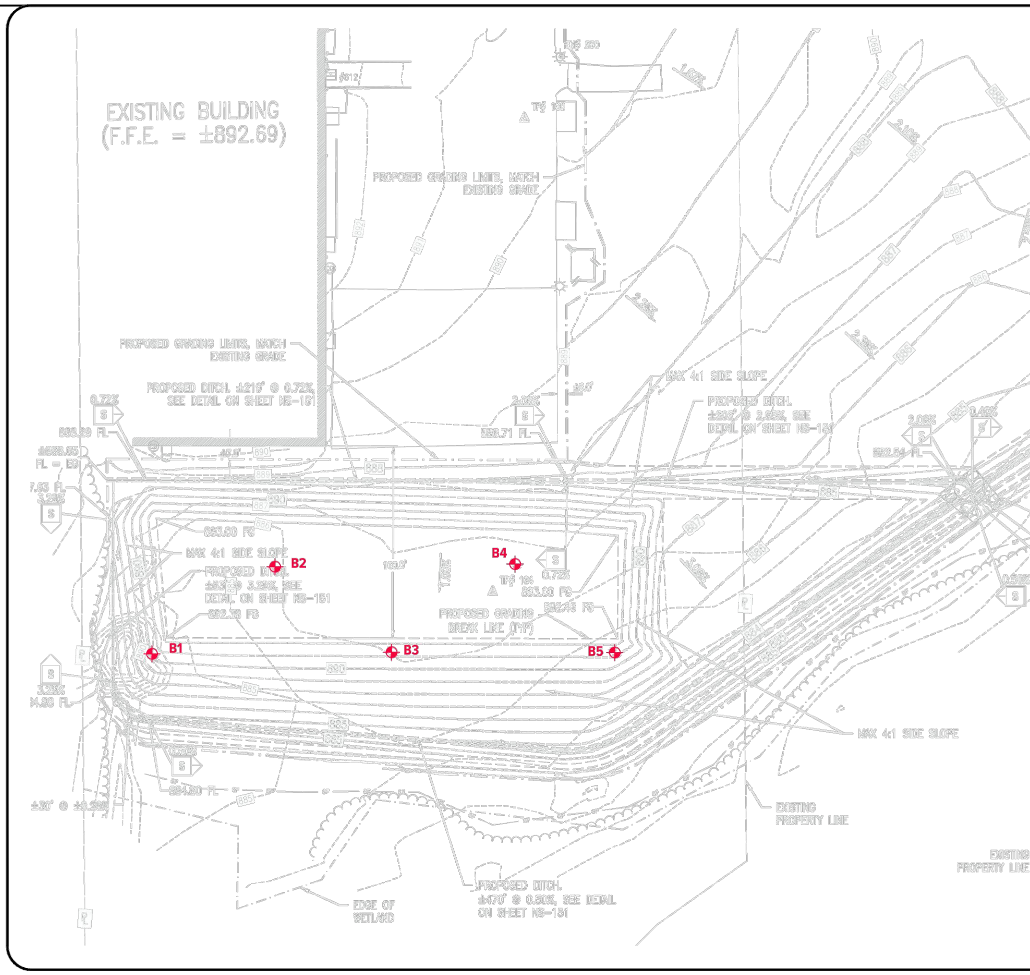
DATE

REVISIONS

07/23/2018 REVISION 1

PROJECT NO.	SHEET NO.
1053-18-0010	R1

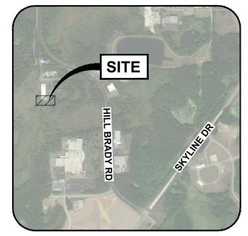
180010COV.dwg



GRAPHIC SCALE: 1" = 50'

LEGEND

APPROXIMATE BORING LOCATION



LOCATION MAP
NOT TO SCALE

NOTE:
DRAWING INFORMATION TAKEN FROM A PDF FILE OF A DRAWING TITLED "NEXTHERMAL - SITE LAYOUT & GRADING PLAN", SHEET NS-150, WITH A FILE DATE OF JULY 9, 2018, AND PREPARED BY OHM ADVISORS FOR THE "CITY OF BATTLE CREEK BUCKNER DR" PROJECT.

SME
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Project	NEXTHERMAL GRADING EXPANSION
Project Location	BATTLE CREEK, MICHIGAN
Sheet Name	BORING LOCATION DIAGRAM
Date	07/23/2018
CADD	JGR
Designer	AJR
Scale	1" = 50'
Project	079391.00
Figure No.	1

No.	Revision Date

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA

PLOT DATE: Jul 23, 2018 - 1:36pm - rlos FILE LOCATION: \\sme-inc\pr\WP\079391.00\CAD\DWGS\BLD\rev0\079391.00-BLD.dwg

BORING B1

PAGE 1 OF 1

PROJECT NAME: Nexthermal Grading Expansion **PROJECT NUMBER:** 079391.00
CLIENT: OHM Advisors **PROJECT LOCATION:** Battle Creek, Michigan
DATE STARTED: 7/3/18 **COMPLETED:** 7/3/18 **BORING METHOD:** Hollow-stem Augers
DRILLER: RM **RIG NO.:** ATV-CME 55 **LOGGED BY:** ZLM **CHECKED BY:** AJR

SURFACE ELEVATION: 887± FT

Depth (ft)	Elevation (ft)	Profile Description
0.6	886.4	7 Inches of TOPSOIL
6.5	880.5	Fine to Coarse SILTY to CLAYEY SAND with Gravel- Brown- Moist to Wet- Loose (SM/SC)
9.5	877.5	Fine to Medium SAND with Silt- Brown- Wet- Loose (SP-SM)
20.0	867.0	SILTY CLAY- Gray- Medium (CL/ML)

Sample Type/No.	Recovery Length (inches)	Blows per Six Inches	N-Value	Moisture (%)	Shear Strength (KSF)	Remarks
SB1	18	3 4 4	8			
SB2	18	2 3 3	6			
SB3	18	2 2 3	5			
SB4	18	3 3 4	7	23	▽	
SB5	18	3 3 4	7	23	▽	
SB6	18	3 4 4	8	24	▽	

END OF BORING AT 20.0 FEET.

GROUNDWATER & BACKFILL INFORMATION	DEPTH (FT)	ELEV (FT)
DURING BORING:	5.5	881.5
AT END OF BORING:	6.0	881.0

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

Legend: ▽ HAND PENE. ⊠ TORVANE SHEAR ○ UNC.COMP. ⊡ VANE SHEAR (PK) × VANE SHEAR (REM) ◈ TRIAXIAL (UU); DRY DENSITY (pcf) -- ■; MOISTURE & ATTERBERG LIMITS (%) PL MC LL; N-VALUE -- ○

BORING B2

PAGE 1 OF 1

PROJECT NAME: Nexthermal Grading Expansion **PROJECT NUMBER:** 079391.00
CLIENT: OHM Advisors **PROJECT LOCATION:** Battle Creek, Michigan
DATE STARTED: 7/3/18 **COMPLETED:** 7/3/18 **BORING METHOD:** Hollow-stem Augers
DRILLER: RM **RIG NO.:** ATV-CME 55 **LOGGED BY:** ZLM **CHECKED BY:** AJR

SURFACE ELEVATION: 886± FT

Depth (ft)	Elevation (ft)	Profile Description
0.5	885.5	6 Inches of TOPSOIL
5.5	880.5	Fine to Coarse CLAYEY SAND with Gravel- Brown- Moist- Medium Dense (SC)
10.0	876.0	Fine to Medium SAND- Brown- Wet- Loose (SP)
20.0	866.0	SILTY CLAY- Gray- Medium to Stiff (CL/ML)

Sample Type/No.	Recovery Length (inches)	Blows per Six Inches	N-Value	Moisture (%)	Shear Strength (KSF)	Remarks
SB1	18	3 4 7	11			
SB2	18	6 8 8	16			
SB3	18	2 3 3	6			
SB4	18	2 2 3	5			
SB5	18	3 3 4	7	25	⊠ 0.9	
SB6	18	3 4 4	8	23	▽	

END OF BORING AT 20.0 FEET.

GROUNDWATER & BACKFILL INFORMATION	DEPTH (FT)	ELEV (FT)
DURING BORING:	5.5	880.5
AT END OF BORING:	6.0	880.0

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

BORING B3

PAGE 1 OF 1

PROJECT NAME: Nexthermal Grading Expansion **PROJECT NUMBER:** 079391.00
CLIENT: OHM Advisors **PROJECT LOCATION:** Battle Creek, Michigan
DATE STARTED: 7/3/18 **COMPLETED:** 7/3/18 **BORING METHOD:** Hollow-stem Augers
DRILLER: RM **RIG NO.:** ATV-CME 55 **LOGGED BY:** ZLM **CHECKED BY:** AJR

SURFACE ELEVATION: 886± FT

Depth (ft)	Elevation (ft)	Profile Description
0.8	885.2	10 Inches of TOPSOIL
6.5	879.5	Fine to Medium SILTY to CLAYEY SAND with Gravel- Brown- Moist- Loose (SM/SC)
8.5	877.5	Fine to Medium SAND- Brown- Wet- Medium Dense (SP)
11.0	875.0	Fine to Medium SAND with Silt- Brown- Wet- Loose (SP-SM)
20.0	866.0	SILTY CLAY- Gray- Medium (CL/ML)

Sample Type/No.	Recovery Length (inches)	Blows per Six Inches	N-Value	Moisture (%)	Shear Strength (KSF)	Remarks
SB1	18	3 5 3	8			
SB2	18	4 4 5	9			
SB3	8	4 7 4	11			
SB4	18	3 3 3	6			
SB5	18	2 3 4	7	24	⊠ 0.9	
SB6	18	3 4 4	8	22	⊠ 0.9	

END OF BORING AT 20.0 FEET.

GROUNDWATER & BACKFILL INFORMATION	DEPTH (FT)	ELEV (FT)
DURING BORING:	6.5	879.5
AT END OF BORING:	6.0	880.0

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

BORING B4

PAGE 1 OF 1

PROJECT NAME: Nexthermal Grading Expansion **PROJECT NUMBER:** 079391.00
CLIENT: OHM Advisors **PROJECT LOCATION:** Battle Creek, Michigan
DATE STARTED: 7/3/18 **COMPLETED:** 7/3/18 **BORING METHOD:** Hollow-stem Augers
DRILLER: RM **RIG NO.:** ATV-CME 55 **LOGGED BY:** ZLM **CHECKED BY:** AJR

SURFACE ELEVATION: 887± FT

Depth (ft)	Elevation (ft)	Profile Description
2.5	884.5	TOPSOIL- Fine SILTY SAND- Frequent Roots- Dark Brown- Very Loose (SM)
6.5	880.5	Fine to Medium SILTY to CLAYEY SAND with Gravel- Brown- Moist- Loose (SM/SC)
13.5	873.5	Fine to Medium SAND- Brown- Wet- Loose (SP)
20.0	867.0	SILTY CLAY- Gray- Stiff to Medium (CL/ML)

Sample Type/No.	Recovery Length (inches)	Blows per Six Inches	N-Value	Moisture (%)	Shear Strength (KSF)	Remarks
SB1	18	2 2 2	4	12		A loss-on-ignition (LOI) test performed at Sample SB1 indicated an organic content of about 2.0 percent.
SB2	18	5 2 5	7			
SB3	18	2 3 3	6			
SB4	18	2 2 3	5			
SB5	18	2 3 7	10	26	▽	
SB6	18	3 4 4	8	25	⊠ 0.9	

END OF BORING AT 20.0 FEET.

GROUNDWATER & BACKFILL INFORMATION	DEPTH (FT)	ELEV (FT)
DURING BORING:	6.5	880.5
AT END OF BORING:	6.5	880.5

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

BORING B5

PAGE 1 OF 1

PROJECT NAME: Nexthermal Grading Expansion **PROJECT NUMBER:** 079391.00
CLIENT: OHM Advisors **PROJECT LOCATION:** Battle Creek, Michigan
DATE STARTED: 7/3/18 **COMPLETED:** 7/3/18 **BORING METHOD:** Hollow-stem Augers
DRILLER: RM **RIG NO.:** ATV-CME 55 **LOGGED BY:** ZLM **CHECKED BY:** AJR

SURFACE ELEVATION: 885± FT

Depth (ft)	Elevation (ft)	Profile Description
0.7	884.3	8 Inches of TOPSOIL
3.5	881.5	Fine to Medium SAND with Silt- Brown- Moist- Loose (SP-SM)
6.0	879.0	Fine to Coarse SILTY to CLAYEY SAND with Gravel- Brown- Moist to Wet- Loose (SM/SC)
11.0	874.0	Fine to Medium SAND- Brown- Wet- Loose (SP)
20.0	865.0	SILTY CLAY- Gray- Stiff (CL/ML)

Sample Type/No.	Recovery Length (inches)	Blows per Six Inches	N-Value	Moisture (%)	Shear Strength (KSF)	Remarks
SB1	18	2 2 3	5			
SB2	18	2 3 4	7			
SB3	18	3 3 3	6			
SB4	18	2 2 3	5			
SB5	18	2 2 3	5	24		Sample SB5 was too disturbed to perform a shear strength test.
SB6	18	3 3 4	7	25	▽	

END OF BORING AT 20.0 FEET.

GROUNDWATER & BACKFILL INFORMATION	DEPTH (FT)	ELEV (FT)
DURING BORING:	4.5	880.5
AT END OF BORING:	6.0	879.0

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

DRAWING PATH: P:\1000_1999\1053180010_buckner_drive_overpass\Drawings\Civil\Plans_Const\180010SOIL_NEXTHERMAL.dwg Jul 23, 2018 - 3:12pm

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REVISIONS: 07/23/2018 REVISION 1

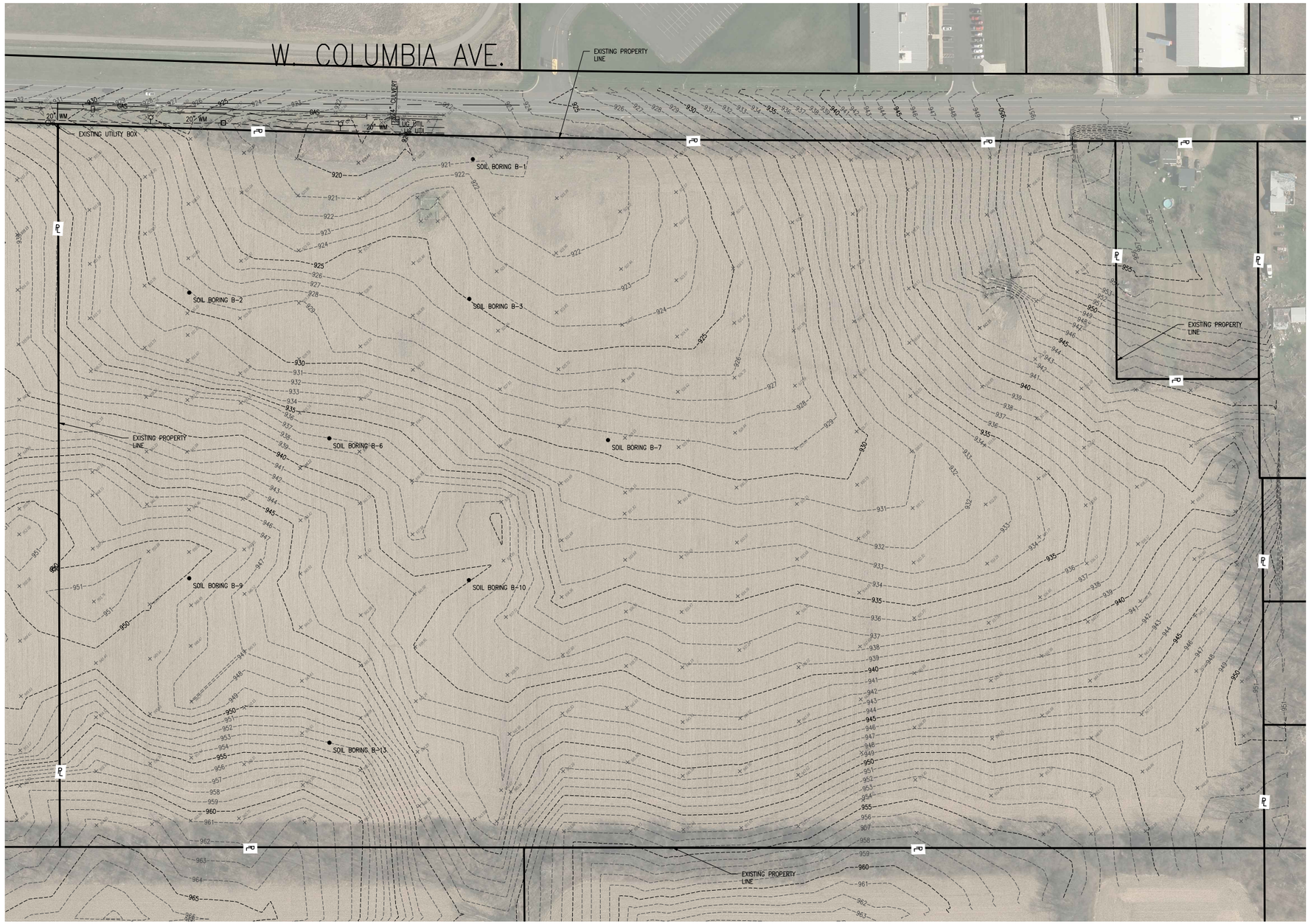
MUNICIPALITY Value
COUNTY Value
CADD Value
PROJ MGR Value
ENG Value
PROJ NUMBER 1053-18-0010
DATE

CITY OF BATTLE CREEK
BUCKNER DR
NEXTHERMAL - SOIL BORING PLAN

SHEET NS-104

TRAVERSE POINT # 1001
N 291791.56
E 12884207.65 ELEV 925.96

TRAVERSE POINT # 1002
N 291071.34
E 1284838.38 ELEV 940.28



N

GRAPHIC SCALE: 1 inch = 100 feet

0 50 100 200 300

SOIL BORING INVENTORIES

SOIL BORING B-1
W85° 14' 54.61"
N42° 17' 49.31"
ELEV 920.82

SOIL BORING B-2
W85° 15' 01.33"
N42° 17' 46.90"
ELEV 929.11

SOIL BORING B-6
W85° 14' 57.96"
N42° 17' 44.35"
ELEV 937.03

SOIL BORING B-3
W85° 14' 54.66"
N42° 17' 46.84"
ELEV 924.96

SOIL BORING B-7
W85° 14' 51.32"
N42° 17' 44.37"
ELEV 929.38

SOIL BORING B-9
W85° 15' 01.26"
N42° 17' 41.85"
ELEV 949.74

SOIL BORING B-10
W85° 14' 54.60"
N42° 17' 41.87"
ELEV 940.06

SOIL BORING B-13
W85° 14' 57.88"
N42° 17' 38.97"
ELEV 952.97

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REVISIONS:

07/23/2018 REVISION 1

DATE | PROJ NUMBER | ENG | PROJ MGR | CADD | COUNTY | MUNICIPALITY

	1053-15-0010	Value	Value	Value	Value	Value

CITY OF BATTLE CREEK
BUCKNER DR

COLUMBIA - SOIL BORING PLAN

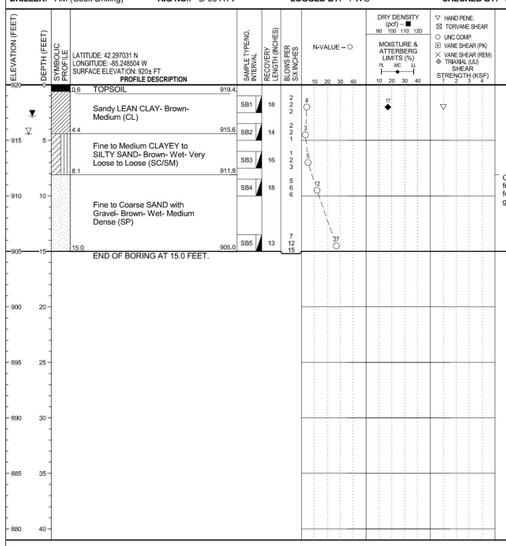
SHEET CS-104

DRAWING PATH: P:\1000_1999\1053\180010_buckner_drive_overpass\Drawings\Civil\Plans_Const\180010SUR_COLUMBIA.dwg Jul 23, 2018 - 3:13pm

BORING B 1

PAGE 1 OF 1

PROJECT NAME: BCTIFA West Columbia Avenue
PROJECT NUMBER: 077194.04
CLIENT: Battle Creek TIFA
PROJECT LOCATION: Battle Creek, Michigan
DATE STARTED: 11/2/17 **COMPLETED:** 11/2/17
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling) **RIG NO.:** D-50 ATV
LOGGED BY: PWG **CHECKED BY:** AJR



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	4.4	915.6
▼ AT END OF BORING:	2.8	917.2
CAVE-IN OF BOREHOLE AT:	3.1	916.9

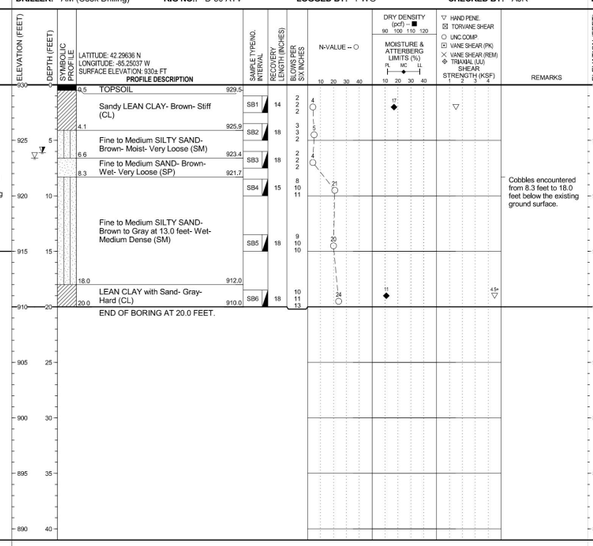
BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.

BORING B 2

PAGE 1 OF 1

PROJECT NAME: BCTIFA West Columbia Avenue
PROJECT NUMBER: 077194.04
CLIENT: Battle Creek TIFA
PROJECT LOCATION: Battle Creek, Michigan
DATE STARTED: 10/30/17 **COMPLETED:** 10/30/17
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling) **RIG NO.:** D-50 ATV
LOGGED BY: PWG **CHECKED BY:** AJR



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	6.6	923.4
▼ AT END OF BORING:	Note 2	
▽ 24 HRS AFTER BORING:	6.1	923.9
CAVE-IN OF BOREHOLE AT:	9.5	920.5

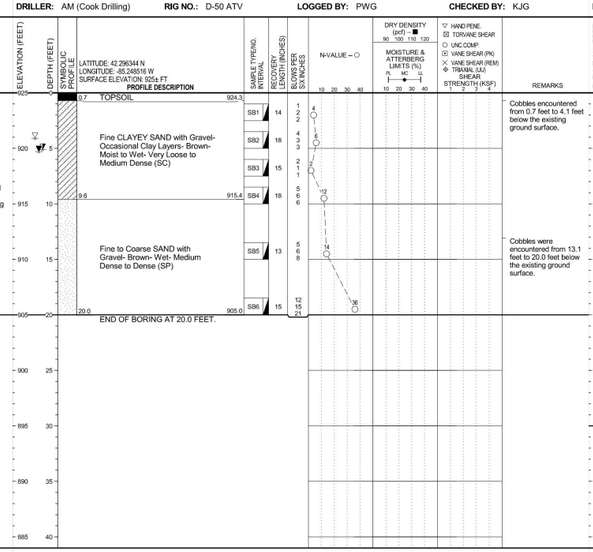
BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. A dry cave-in was observed upon auger extraction in the borehole above the groundwater level observed during drilling.

BORING B 3

PAGE 1 OF 1

PROJECT NAME: BCTIFA West Columbia Avenue
PROJECT NUMBER: 077194.04
CLIENT: Battle Creek TIFA
PROJECT LOCATION: Battle Creek, Michigan
DATE STARTED: 11/2/17 **COMPLETED:** 11/2/17
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling) **RIG NO.:** D-50 ATV
LOGGED BY: PWG **CHECKED BY:** KJG



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	4.1	920.9
▼ AT END OF BORING:	5.3	919.7
▽ 2 HRS AFTER BORING:	5.1	919.9
CAVE-IN OF BOREHOLE AT:	7.2	917.8

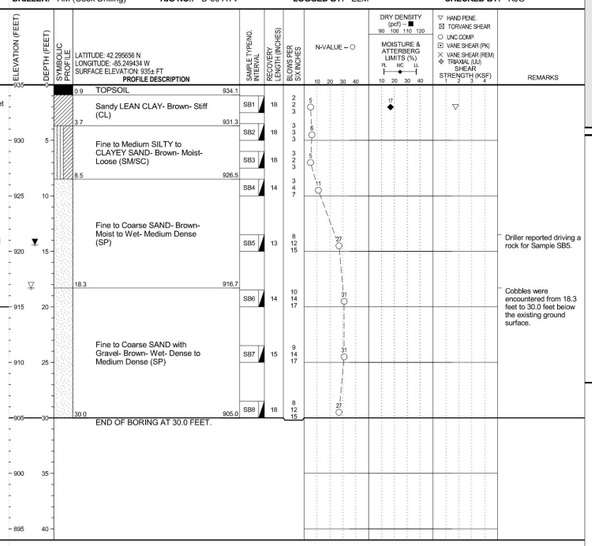
BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. A wet cave-in was observed at 6.8 feet below the existing ground surface 2 hours after completion of drilling.

BORING B 6

PAGE 1 OF 1

PROJECT NAME: BCTIFA West Columbia Avenue
PROJECT NUMBER: 077194.04
CLIENT: Battle Creek TIFA
PROJECT LOCATION: Battle Creek, Michigan
DATE STARTED: 10/30/17 **COMPLETED:** 10/30/17
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling) **RIG NO.:** D-50 ATV
LOGGED BY: ZLM **CHECKED BY:** KJG



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	18.3	916.7
▼ AT END OF BORING:	14.4	920.6
24 HRS AFTER BORING:	Note 2	
CAVE-IN OF BOREHOLE AT:	14.4	920.6

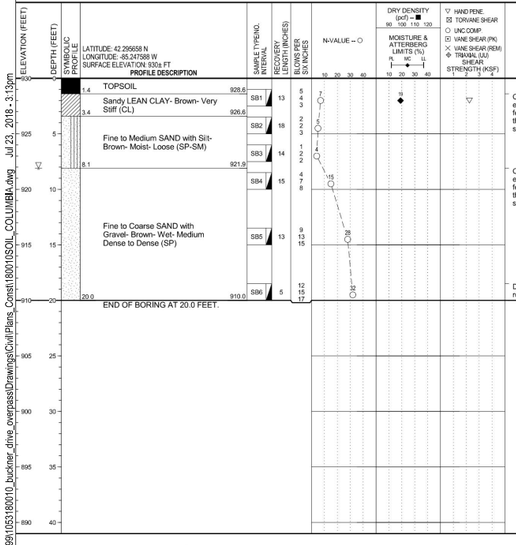
BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. A dry cave-in was observed at 12.3 feet below the existing ground surface 24 hours after completion of drilling.

BORING B 7

PAGE 1 OF 1

PROJECT NAME: BCTIFA West Columbia Avenue
PROJECT NUMBER: 077194.04
CLIENT: Battle Creek TIFA
PROJECT LOCATION: Battle Creek, Michigan
DATE STARTED: 11/2/17 **COMPLETED:** 11/2/17
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling) **RIG NO.:** D-50 ATV
LOGGED BY: ZLM **CHECKED BY:** KJG



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	8.1	921.9
▼ AT END OF BORING:	Note 2	
5 HRS AFTER BORING:	Note 3	
CAVE-IN OF BOREHOLE AT:	8.9	921.1

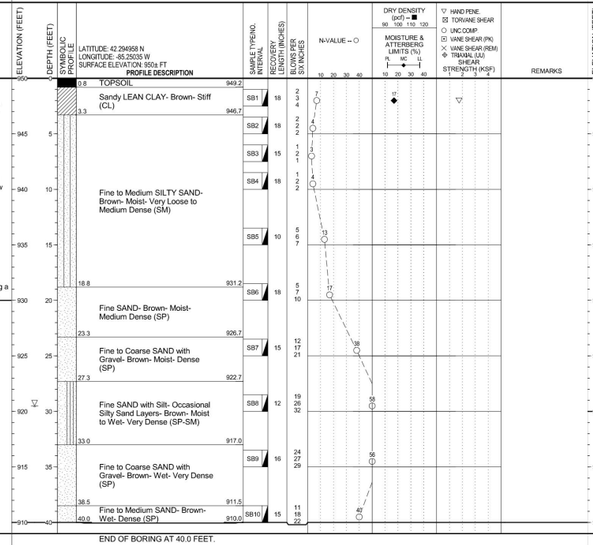
BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. A dry cave-in was observed upon auger extraction in the borehole above the groundwater level observed during drilling.
3. A dry cave-in was observed at 8.7 feet below the existing ground surface 5 hours after completion of drilling.

BORING B 9

PAGE 1 OF 1

PROJECT NAME: BCTIFA West Columbia Avenue
PROJECT NUMBER: 077194.04
CLIENT: Battle Creek TIFA
PROJECT LOCATION: Battle Creek, Michigan
DATE STARTED: 10/30/17 **COMPLETED:** 10/30/17
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling) **RIG NO.:** D-50 ATV
LOGGED BY: ZLM **CHECKED BY:** KJG



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	29.5	920.5
▼ AT END OF BORING:	Note 2	
24 HRS AFTER BORING:	Note 3	
CAVE-IN OF BOREHOLE AT:	22.4	927.6

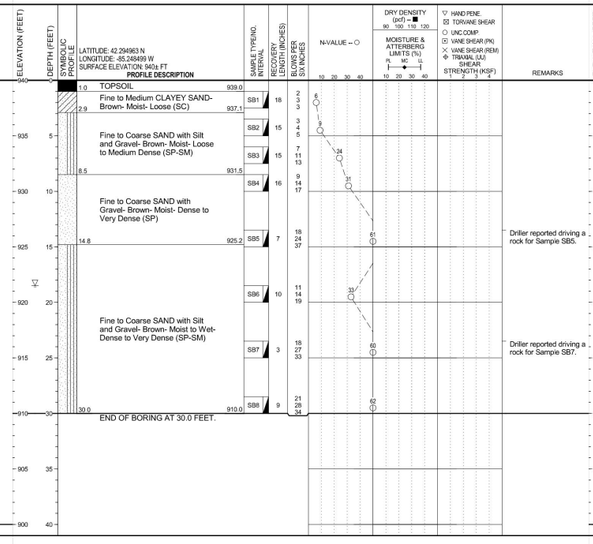
BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. A dry cave-in was observed upon auger extraction in the borehole above the groundwater level observed during drilling.
3. A dry cave-in was observed at 22.4 feet below the existing ground surface 24 hours after completion of drilling.

BORING B10

PAGE 1 OF 1

PROJECT NAME: BCTIFA West Columbia Avenue
PROJECT NUMBER: 077194.04
CLIENT: Battle Creek TIFA
PROJECT LOCATION: Battle Creek, Michigan
DATE STARTED: 10/31/17 **COMPLETED:** 10/31/17
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling) **RIG NO.:** D-50 ATV
LOGGED BY: ZLM **CHECKED BY:** KJG



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	18.5	921.5
▼ AT END OF BORING:	Note 2	
24 HRS AFTER BORING:	Note 3	
CAVE-IN OF BOREHOLE AT:	13.6	926.4

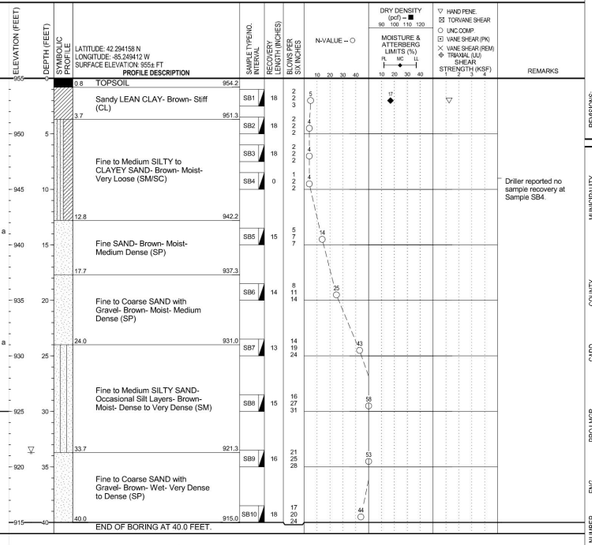
BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. A dry cave-in was observed upon auger extraction in the borehole above the groundwater level observed during drilling.
3. A dry cave-in was observed at 13.0 feet below the existing ground surface 24 hours after completion of drilling.

BORING B13

PAGE 1 OF 1

PROJECT NAME: BCTIFA West Columbia Avenue
PROJECT NUMBER: 077194.04
CLIENT: Battle Creek TIFA
PROJECT LOCATION: Battle Creek, Michigan
DATE STARTED: 10/30/17 **COMPLETED:** 10/30/17
BORING METHOD: Hollow-stem Augers
DRILLER: AM (Cook Drilling) **RIG NO.:** D-50 ATV
LOGGED BY: ZLM **CHECKED BY:** KJG



GROUNDWATER & BACKFILL INFORMATION

	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	33.7	921.3
▼ AT END OF BORING:	Note 2	
24 HRS AFTER BORING:	Note 3	
CAVE-IN OF BOREHOLE AT:	21.4	933.6

BACKFILL METHOD: Auger Cuttings

NOTES: 1. The indicated stratification lines are approximate. In situ, the transition between materials may be gradual.
2. A dry cave-in was observed upon auger extraction in the borehole above the groundwater level observed during drilling.
3. A dry cave-in was observed at 21.0 feet below the existing ground surface 24 hours after completion of drilling.

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REVISIONS:
07/23/2018 REVISION 1

CITY OF BATTLE CREEK
BUCKNER DR
COLUMBIA - SOIL BORING LOGS

DRAWING PATH: P:\1000_1999\10531\80010_buckner_drive_overpass\Drawings\Civil\Plans_Const\180105SOIL_COLUMBIA.dwg Jul 23, 2018 - 3:13pm

DATE | PROJ NUMBER 10531-80010 | ENG | PROJ MGR | CADD | COUNTY | MUNICIPALITY
Value | Value | Value | Value | Value

SHEET CS-105

TRAVERSE POINT # 1001
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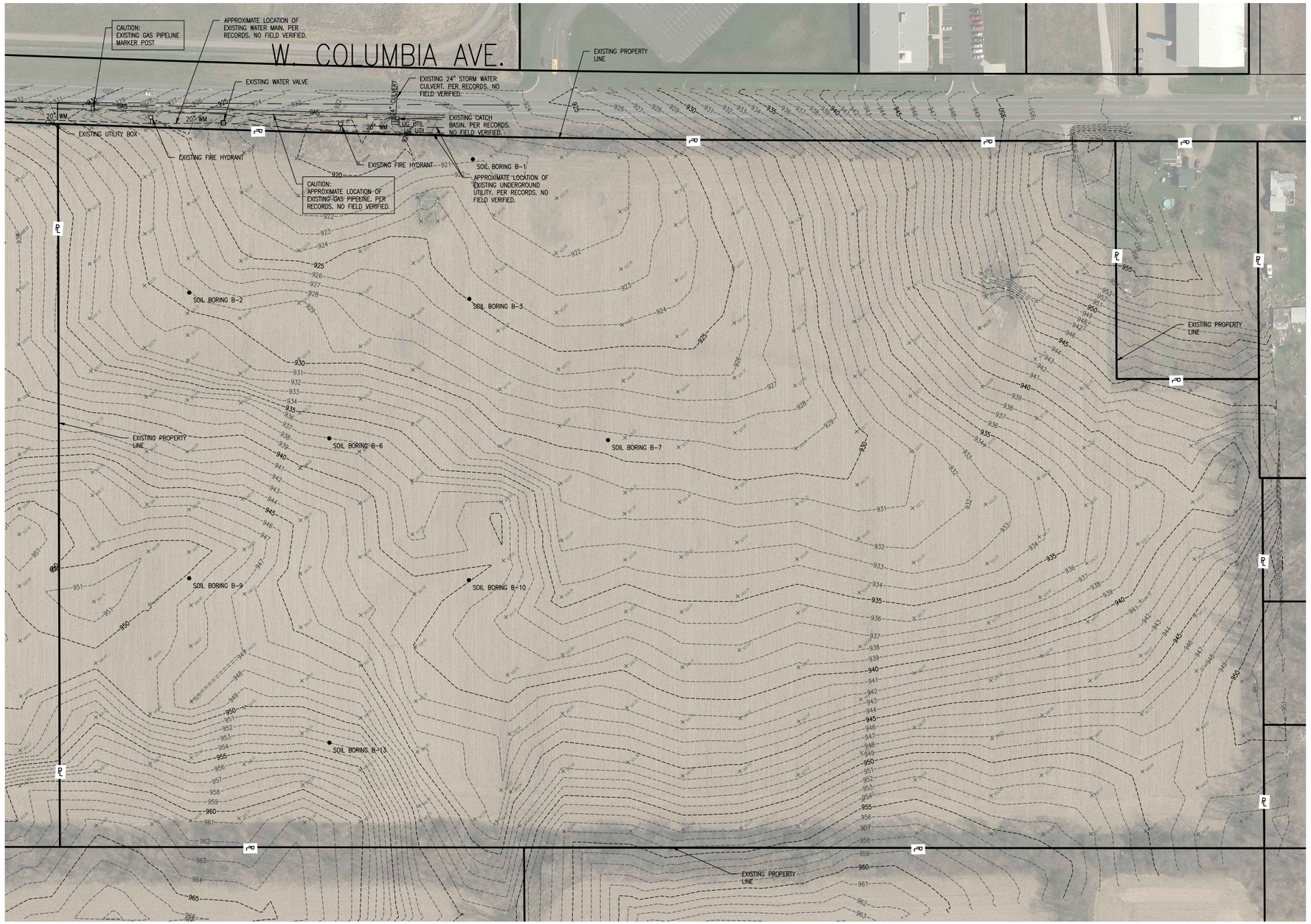
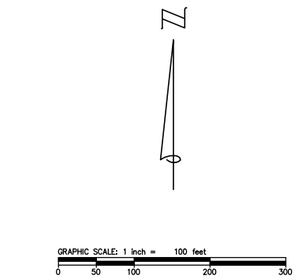
E 12884207.65 ELEV 925.96
TRAVERSE POINT # 1002
N 291071.34
E 1284838.38 ELEV 940.28





NOTES:

1. EXISTING CONDITIONS ARE PRESENTED BASED ON TOPOGRAPHIC SURVEY PROVIDED BY THE CITY OF BATTLE CREEK ON 07/11/2018. ALL EXISTING INFORMATION PRESENTED IN THESE PLAN SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR, ANY DISCREPANCIES IN THE PLAN SHALL BE MADE AWARE TO THE ENGINEER PRIOR TO BEGINNING CONSTRUCTION.
2. ONE-CALL UTILITY LOCATING: MISSDIG - 811 OR 800-482-7171. CONTRACTOR SHALL OPEN AN EXCAVATION TICKET A MINIMUM OF 3 WORKING DAYS PRIOR TO ANY EXCAVATION. WHEN MARKINGS AND FLAGS ARE DISRUPTED OR DESTROYED – CALL FOR REMARKING.
3. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATIONS OF EXISTING UTILITIES, PIPES AND/OR STRUCTURES SHOWN ON THESE PLANS ARE OBTAINED FROM INFORMATION PROVIDED BY OTHERS. THE CONTRACTOR SHALL INVESTIGATE AND VERIFY THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ANY UNDERGROUND UTILITIES SHOWN OR NOT SHOWN HEREON. THE ENGINEER, ARCHITECT, AND OWNER ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE LOCATION OR DEPTH OF ANY EXISTING UTILITY SHOWN OR NOT SHOWN ON THE PROJECT DRAWINGS.

LEGEND

- EXISTING SPOT GRADE (753.68)
- EXISTING CONTOURS (925 / 924)
- EXISTING PROPERTY LINE
- GAS
- UNDERGROUND UTILITY (UG UTIL)
- WATER MAIN (20" WM)
- STORM WATER CULVERT (24" CULVERT)
- GATE VALVE & BOX
- FIRE HYDRANT
- PRIVATE UTILITY MANHOLE (Ou)
- SIGN

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REVISIONS
07/23/2018 REVISION 1

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	MUNICIPALITY
	1053-15-0010	Value	Value	Value	Value	Value

CITY OF BATTLE CREEK
BUCKNER DR
COLUMBIA - EXISTING CONDITIONS PLAN

SHEET CS-110

DRAWING PATH: P:\1000_1999\1053\80010_buckner_drive_overpass\Drawings\Civil\Plans_Const\180010SUR_COLUMBIA.dwg Jul 23, 2018 - 3:13pm

LEGEND

EG	EXISTING GRADE
FG	FINAL GRADE
920.25 FL	PROPOSED SPOT GRADE
925 / 924	EXISTING CONTOURS
925 / 924	PROPOSED CONTOURS
	GRADING LIMITS (MATCH EXISTING GRADE)
	GRADING BREAK LINE

GRAPHIC SCALE: 1 Inch = 100 feet

0 50 100 200 300

EARTHWORK TABLE

	WEST COLUMBIA
EXCAVATION	107,354 CY
STRIPING TOPSOIL**	10,800 CY
EMBANKMENT (COMPACTED VOLUME)	1,500 CY
EMBANKMENT (BANK VOLUME)*	1,725 CY
NET	105,629 CY (CUT)

* IT IS ASSUMED A BANK – COMPACTED CONVERSION FACTOR OF 1.15

** IT ASSUMED 8" DEPTH OF EXISTING TOPSOIL

(FOR CONTRACTOR REFERENCE ONLY)

NOTES

1. **GRADING SHOWN ON THIS PLAN IS FOR REFERENCE ONLY. CONTRACTOR SHALL LIMIT THE EXCAVATION TO THE AMOUNT NEEDED TO COMPLETE THE EARTHWORK SHOWN ON THE AIRPORT GRADING PLANS (LESS THAN 80,000 CYD OF EXCAVATION IS ANTICIPATED)**
2. **CONTRACTOR SHALL COMPLETE EARTHWORK OPERATIONS AND GRADING IN A MANNER THAT FACILITATES POSITIVE DRAINAGE AWAY FROM THE EXCAVATION/BORROW SITE.**

SHEET NOTES

COMPACTION / SOIL TESTING

1. FILL AND BACKFILL MATERIALS SHALL BE PLACED UNIFORMLY ON AN ACCEPTABLE SOIL SURFACE AND COMPACTED IN 8-INCH LIFTS UNLESS THAT CONTRACTOR CAN DEMONSTRATE TO THE OWNER'S REPRESENTATIVE THAT ACCEPTABLE COMPACTION CAN BE ACHIEVED IN THICKER LIFTS.
2. COMPACTION EQUIPMENT:
   - A. SHEEPSFOOT ROLLER FOR COHESIVE MATERIALS
   - B. VIBRATORY FOR GRANULAR MATERIALS (SAND, STONE, AND GRAVEL)
3. WATER CONTENT: PLUS OR MINUS 2% OF THE OPTIMUM (ASTM D 1557).
4. ROLLER: WORK FROM OUTSIDE TO THE CENTER, OVERLAPPING ON SUCCESSIVE TRIPS AT LEAST ONE-HALF THE WIDTH OF THE ROLLER. ALTERNATE TRIPS OF THE ROLLER SHALL BE SLIGHTLY DIFFERENT LENGTHS.
5. SPEED SHALL BE SUCH THAT DISPLACEMENT OF THE AGGREGATE DOES NOT OCCUR. IN ALL PLACES NOT ACCESSIBLE TO THE ROLLERS, THE MIXTURE SHALL BE COMPACTED WITH HAND-OPERATED POWER TAMPERS OR EXCAVATOR MOUNTED VIBRATORY COMPACTOR (I.E. HOE-PACK).
6. COMPACTION SHALL BE MEASURED RELATIVE TO THE MAXIMUM DRY DENSITY PER ASTM D 1557 (MODIFIED PROCTOR METHOD).
7. MINIMUM COMPACTION:
   - A. TOPSOIL 85%
   - B. GENERAL FILL 95%
   - C. BERMS/POND SLOPES 95%
8. FILL AND BACKFILL WITHIN A 1:1 ENVELOPE OF THE EDGE OF PAVEMENT OR BACK OF CURB SHALL BE TREATED AS "UNDER PAVEMENT"
9. TESTING:
   - A. TESTING AGENCY: HAS AUTHORITY TO STOP OR REJECT WORK FOR QUALITY ON BEHALF OF THE OWNER
   - B. MOISTURE-DENSITY RELATIONSHIP (ASTM D 1557 – MODIFIED PROCTOR): ONE TEST FOR EACH MATERIAL VARIATION AND BORROW SOURCE.
   - C. SIEVE ANALYSIS, (ASTM C 136): 1 PER MATERIAL FOR EACH BORROW SOURCE, EACH RECLAIMED ON-SITE MATERIAL, AND FOR EACH VARIATION IN MATERIAL.
   - D. IN-PLACE DENSITIES (ASTM D1556 – SAND CONE OR ASTM D6938 – NUCLEAR GAUGE):
     - a) GENERAL: 1 PER 500 SQUARE FEET
     - b) UTILITY TRENCHES: 1 PER 100 FEET OF PIPE

GRADING AND RESTORATION

1. SUBMIT RESTORATION PROCEDURE, SEEDS, FERTILIZERS, AND/OR PLANTS TO THE ENGINEER FOR APPROVAL PRIOR TO EXECUTING THE WORK.
2. ALL DISTURBED UNPAVED LAWN AREAS ARE TO RECEIVE AT LEAST 3" OF TOPSOIL, THE CONTRACTOR MAY USE SOD, SEED AND MULCH, OR HYDROSEED, UNLESS OTHERWISE NOTED. THESE AREAS SHALL BE WATERED BY THE CONTRACTOR UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
3. TOPSOIL PLACEMENT:
   - A. BEFORE SPREADING THE TOPSOIL, ASSURE THAT ALL NECESSARY EROSION AND SEDIMENT CONTROL PRACTICES ARE IN PLACE AND FUNCTIONING PROPERLY. THESE PRACTICES MUST BE MAINTAINED UNTIL THE SITE IS PERMANENTLY STABILIZED.
   - B. GRADING – MAINTAIN GRADES ON THE AREAS TO BE TOPSOILED ACCORDING TO THE APPROVED PLAN AND DO NOT ALTER THEM BY ADDING TOPSOIL.
   - C. IMMEDIATELY PRIOR TO SPREADING THE TOPSOIL, LOOSEN OR SCARIFY THE SUBGRADE TO A DEPTH OF AT LEAST 4 INCHES.
   - D. TOPSOIL SHALL NOT BE SPREAD WHILE IT IS FROZEN OR MUDDY OR WHEN THE SUBSOIL IS FROZEN OR MUDDY.
   - E. COMPACT THE TOPSOIL ENOUGH TO ENSURE GOOD CONTACT WITH THE UNDERLYING SOIL, BUT AVOID EXCESSIVE COMPACTION, AS IT INCREASES RUNOFF AND INHIBITS SEED GERMINATION AND SEEDLING GROWTH.
4. ALL DISTURBED DETENTION AREAS ARE TO BE SEEDED AND MULCHED USING AN APPROVED SEED MIX.
5. ALL PROPOSED SLOPES ARE TO BE GRADED TO 4H:1V OR FLATTER, UNLESS OTHERWISE INDICATED ON SHEETS.
6. SPOT ELEVATIONS SHOWN INDICATE FINISHED PAVEMENT ELEVATIONS UNLESS OTHERWISE NOTED. ELEVATIONS SHOWN AT STRUCTURES ARE TO FINISH GRADE UNLESS OTHERWISE INDICATED.
7. FINISHED GRADING SHALL BE COMPLETED ACCORDING TO THE GRADING PLAN CONTOURS AND SPOT GRADES. THE CONTRACTOR SHALL UNIFORMLY GRADE AREAS WITHIN LIMITS OF GRADING, INCLUDING ADJACENT TRANSITION AREAS. PROVIDE A SMOOTH FINISHED SURFACE WITHIN SPECIFIED TOLERANCES, WITH UNIFORM LEVELS OR SLOPES BETWEEN POINTS, WHERE ELEVATIONS ARE SHOWN, OR BETWEEN SUCH POINTS, AND EXISTING GRADES. AREAS THAT HAVE BEEN FINISH GRADED SHALL BE PROTECTED FROM SUBSEQUENT CONSTRUCTION OPERATIONS.
8. AFTER THE SITE GRADING IS COMPLETED, IF EXCESS SOIL MATERIAL OR DEMOLITION DEBRIS EXISTS, THE CONTRACTOR SHALL DISPOSE OF ALL EXCESS SOIL AND DEBRIS MATERIAL IN A MANNER ACCEPTABLE TO THE OWNER AND THE REGULATING AGENCIES INVOLVED.
9. DISTURBED AREAS SHALL BE SLOPED AND GRADED TO RESTORE ORIGINAL DRAINAGE PATTERNS, OR PROVIDE POSITIVE DRAINAGE WHERE NEEDED.
10. RESTORATION OF NON-PAVED AREAS SHALL BE WITH SALVAGED OR IMPORTED TOPSOIL AND PLANTED IN ACCORDANCE WITH THE LANDSCAPE PLANS OR SEEDED AND MULCHED. SEEDED SLOPES GREATER THAN 1V:6H SHALL BE STABILIZED WITH SEED AND STAKED MULCH BLANKETS.

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REVISIONS
07/23/2018 REVISION 1

DATE
PROJ NUMBER 1053-19-0010
ENG Value
PROJ MGR Value
CADD Value
COUNTY Value
MUNICIPALITY Value

CITY OF BATTLE CREEK
BUCKNER DR
COLUMBIA - GRADING PLAN

SHEET CS-150

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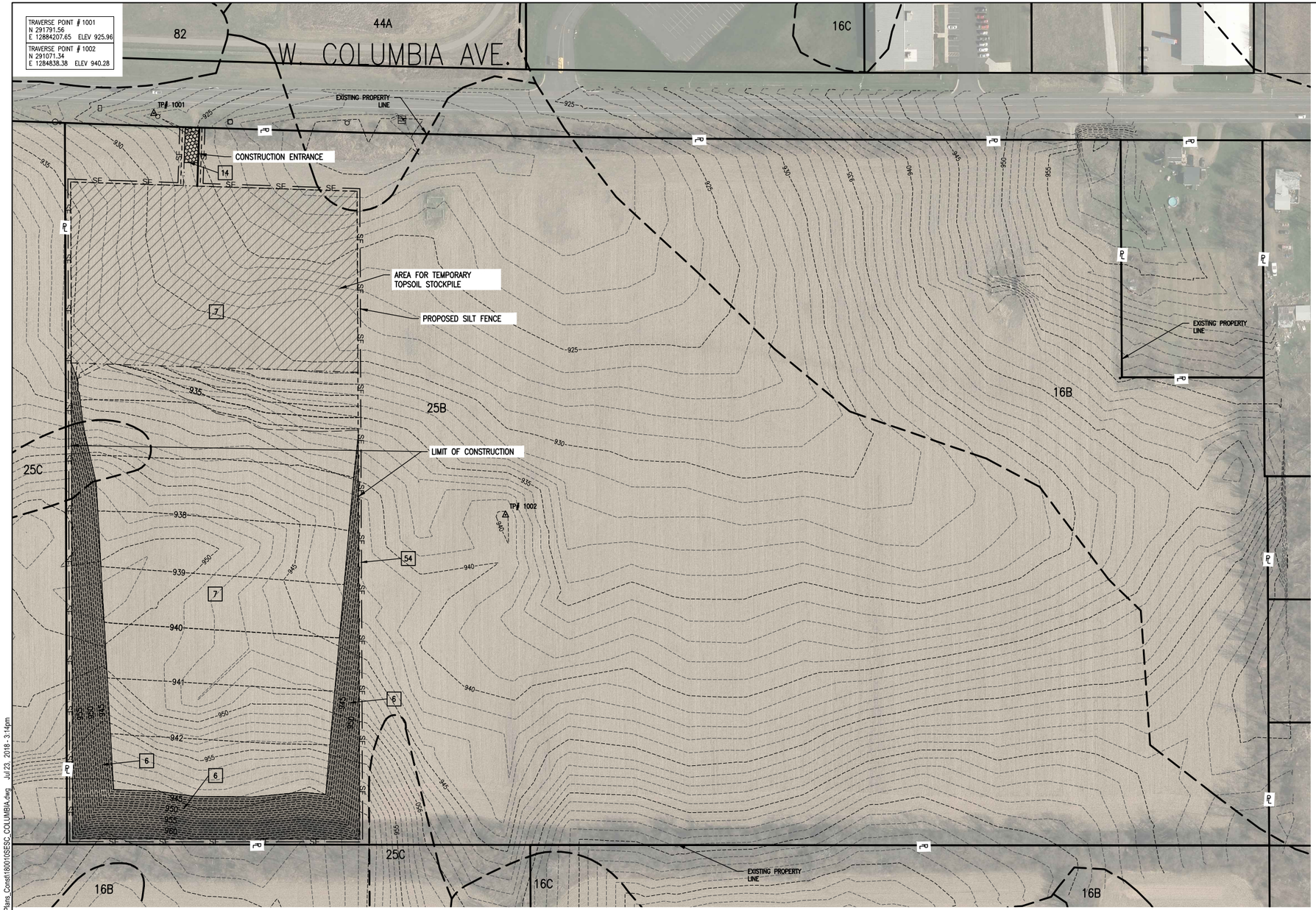

TASK	FREQUENCY	TRACKING MAT	SILT FENCE	INLET FILTERS	VEGETATION
INSPECT FOR SEDIMENT ACCUMULATION	WEEKLY	X	X	X	
REMOVE ACCUMULATED SEDIMENT	AS NEEDED		X	X	
INSPECT FOR FLOATABLES AND DEBRIS	WEEKLY			X	
REMOVE FLOATABLES AND DEBRIS	AS NEEDED			X	
INSPECT FOR PERMIT CONFORMANCE	AFTER RAIN	X	X		
RESTORE TO PERMIT CONFORMANCE	WEEKLY	X	X		
INSPECT FOR SOIL EROSION	AFTER RAIN				X
RESTORE TO PREVENT EROSION	AS NEEDED				X
SCRAPE STREET/DRIVES	DAILY				
SWEEP STREET/DRIVES	WEEKLY				

SESC MAINTENANCE SCHEDULE

CONSTRUCTION PHASES	2018 SEP	OCT	NOV	DEC	2019 JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
MOBILIZATION	X											
PLACE SESC DEVICES / INSTALL TRACKING PAD	X											
STRIP AND STOCKPILE TOPSOIL	X	X	X									
ROUGH GRADING / SEDIMENT CONTROL	X	X	X									
TEMPORARY CONTROL MEASURES	X	X	X	X	X	X	X	X	X	X	X	X
RESTORATION/TURF ESTABLISHMENT		X	X	X	X	X	X	X	X	X	X	X
REMOVE SESC DEVICES												X
PROJECT COMPLETE												X

CONSTRUCTION DATES ARE SUBJECT TO CHANGE.
CONTRACTOR SHALL PROVIDE UPDATED SCHEDULE PRIOR TO CONSTRUCTION.

CONSTRUCTION SEQUENCE

SUPPLEMENTAL SOIL EROSION CONTROL NOTES:

1. ALL EXISTING AND PROPOSED CATCH BASINS SHALL HAVE INLET FILTERS INSTALLED DURING THE DURATION OF CONSTRUCTION.
2. SOILS ONSITE CONSIST OF THE FOLLOWING:
   - 16B OSHTEMO SANDY LOAM, 0 TO 6 PERCENT SLOPES
   - 16C OSHTEMO SANDY LOAM, 6 TO 12 PERCENT SLOPES
   - 25B KALAMAZOO LOAM, 2 TO 6 PERCENT SLOPES
   - 25C KALAMAZOO LOAM, 6 TO 12 PERCENT SLOPES
   - 44A MATHERTON LOAM, 0 TO 3 PERCENT SLOPES
   - 82 UDIPSAMMENTS AND UDORTHENTES, NEARLY LEVEL TO STEEP
3. NO FLOODPLAINS ARE ON THE SITE
4. EROSION CONTROL BLANKETS (MULCH BLANKETS) SHALL BE:
   - NORTH AMERICAN GREEN BIONET C125BN
   - OR EAST COAST EROSION CONTROL ECC-2B BIODEGRADABLE DOUBLE COCONUT
   - OR APPROVED EQUAL
5. RESTORATION OF DISTRBED AREAS NOT REQUIRING SEED AND MULCH BLANKETS SHALL BE RESTORED WITH SEED/MULCH OR HYDROSEED.

6	Seeding with Mulch and/or Matting	Facilitates establishments of vegetative cover. Effective for drainageways with low velocity. Easily placed in small quantities by inexperinced personnel. Shall include prepared topsoil be and straw mulch. Shall use a Mulch Blanket when slopes are 6H:1V or steeper. — PERMANENT MEASURE
7	Hydro seeding	Effective on large areas. Mulch tacking agent used to provide immediate protection until grass is rooted. Shall include prepared topsoil bed. — PERMANENT MEASURE
14	Aggregate Cover	Tracking Mat – replenish stone as required due to rutting. 1"–3" crushed concrete 8" thick on geo–fabric. 25' wide by 50' long. Temporary measure, remove after completion of construction. — TEMPORARY MEASURE
54	Silt Fence	Filters and detains runoff. Shown on plan as —— SF —— — TEMPORARY MEASURE

AREA OF DISTURBANCE
SITE IMPROVEMENTS: ±13.90 ACRES

SOILS EROSION, SEDIMENTATION CONTROL (SESC) AND STORMWATER POLLUTION PREVENTION (SWPP) NOTES:

1. LOCAL REGULATOR – CALHOUN ROAD DEPARTMENT (269) 781–9841
2. SOIL EROSION AND SEDIMENTATION CONTROL SEQUENCE
   A. NO DEMOLITION, CUTTING, GRADING, EXCAVATION, OR CONSTRUCTION SHALL BE PERFORMED PRIOR TO FULL IMPLEMENTATION OF CONTROL MEASURES.
   B. DESIGN, CONSTRUCT, AND COMPLETE THE EARTH CHANGE IN A MANNER THAT LIMITS THE EXPOSED AREA OF DISTURBED LAND FOR THE SHORTEST PERIOD OF TIME.
   C. REMOVE SEDIMENT CAUSED BY ACCELERATED SOIL EROSION FROM RUNOFF WATER BEFORE IT LEAVES THE SITE OF THE EARTH CHANGE.
   D. TEMPORARY OR PERMANENT CONTROL MEASURES SHALL BE INSTALLED TO CONVEY WATER AROUND, THROUGH OR FROM THE EARTH CHANGE AT A NON–EROSIVE VELOCITY.
   E. INSTALL TEMPORARY SOIL AND SEDIMENTATION CONTROL MEASURES BEFORE OR UPON COMMENCEMENT OF THE EARTH CHANGE ACTIVITY AND MAINTAIN THE MEASURES ON A DAILY BASIS. REMOVE TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AFTER PERMANENT SOIL EROSION MEASURES ARE IN PLACE AND THE AREA IS STABILIZED. (STABILIZED MEANS THE ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING OR COVERING OF SOIL TO ENSURE RESISTANCE TO SOIL EROSION, SLIDING OR OTHER EARTH MOVEMENT.)
   F. COMPLETE PERMANENT SOIL EROSION CONTROL MEASURES FOR THE EARTH CHANGE WITHIN FIVE (5) CALENDAR DAYS AFTER FINAL GRADING OR UPON COMPLETION OF FINAL EARTH CHANGE. IF IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE THE EARTH CHANGE, THEN MAINTAIN TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IN PLACE AND STABILIZED.
   G. REMOVE AND DISPOSE OF ALL TEMPORARY CONTROL MEASURES AFTER RESTORATION IS COMPLETE.
3. SOIL EROSION AND SEDIMENTATION CONTROL MAINTENANCE NOTES
   A. INSTALL TEMPORARY INLET FILTERS AT ALL ADJACENT AND DOWN–GRADIENT STORM WATER INLETS, CATCH BASINS AND MANHOLES THAT MAY BE IMPACTED. CATCH BASIN INLET FILTERS SHALL BE MAINTAINED CLEAN AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD. IF A FILTER HAS HOLES OR IS INUNDATED WITH SEDIMENT, THE FILTER SHALL BE REPLACED BY THE CONTRACTOR.
   B. SILT FENCE SHALL BE MAINTAINED AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD. IF REPAIR OR REPLACEMENT IS NECESSARY, IT SHALL BE PERFORMED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS. MAINTENANCE INCLUDES THE REMOVING OF BUILT–UP SEDIMENT ACCUMULATES TO ½ THE HEIGHT OF THE FENCE. CONTRACTOR SHALL REMOVE, REPLACE, RETRENCH, OR RE–BACKFILL THE FENCE IF IT FAILS. ADDITIONALLY, THE CONTRACTOR SHALL REINSTALL ANY PORTION OF THE FENCING DAMAGED BY CONSTRUCTION MACHINERY.
   C. PLACE STOCKPILES AND OTHER SPOIL PILES AWAY FROM THE DRAINAGE SYSTEM TO MINIMIZE SEDIMENT TRANSPORT. IF THE STOCKPILE AND/OR SPOIL PILE MUST REMAIN ON–SITE OVERNIGHT, OR IF THE WEATHER CONDITIONS INDICATE THE CHANCE FOR PRECIPITATION, A) COVER THE PILE WITH WATER REPELLENT MATERIAL TO PREVENT EROSION AND/OR B) INSTALL SILT FENCING AROUND THE BASE OF THE PILE TO PREVENT TRANSPORT OF SEDIMENT TO THE STORM WATER SYSTEM, OR APPLY OTHER CONTROL METHODS APPROPRIATE TO THE SITE. CONTROL MEASURES TO GUARD AGAINST WIND EROSION MUST ALSO BE EMPLOYED, SUCH AS WETTING OR COVERING THE STOCKPILES. KEEP AS FEW STOCKPILES AS POSSIBLE DURING THE COURSE OF THE PROJECT.
   D. DITCHES AND SWALES SHALL HAVE CHECK DAMS INSTALLED AT REGULAR INTERVALS; CULVERT INLETS AND/OR SPILLWAYS SHALL BE PROTECTED WITH STONE BERMS OR STRAW BALES.
   E. THROUGHOUT THE CONSTRUCTION PERIOD, ALL MUD/SILT TRACKED ONTO EXISTING ROADS FROM THE SITE DUE TO CONSTRUCTION SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR.
   F. SEEDING OR OTHER STABILIZATION SHALL BE REQUIRED IMMEDIATELY TO AREAS DAMAGED BY RUNOFF.
   G. DUST CONTROL: PREVENT THE SPREAD OF DUST AND DEBRIS AND AVOID THE CREATION OF A NUISANCE IN THE SURROUNDING AREA. WATER SHALL BE THE ONLY APPROVED DUST CONTROL SUBSTANCE. DO NOT USE WATER IF IT RESULTS IN HAZARDOUS OR OBJECTIONABLE CONDITIONS SUCH AS, BUT NOT LIMITED TO, ICE, FLOODING, OR POLLUTION.
   H. INSPECTIONS BY THE OWNER OR A REGULATOR MAY OCCUR AND RESULT IN DIRECTION FOR MAINTENANCE OR EXPANSION OF INSTALLED MEASURES; CONTRACTOR SHALL COMPLY AT NO ADDITIONAL COST.
4. POLLUTION PREVENTION NOTES
   A. DURING WORK ACTIVITIES IF SUSPECT CONTAMINATED SOIL, GROUNDWATER, OR OTHER UNKNOWN MATERIAL IS ENCOUNTERED CONTACT THE OWNER'S REPRESENTATIVE IMMEDIATELY. SUSPECT CONTAMINATED SOIL MAY EXHIBIT CHEMICAL OR UNUSUAL ODORS, STAINING, UNUSUAL COLORING, AND/OR CONTAIN MAN–MADE DEBRIS. SUSPECT CONTAMINATED GROUNDWATER MAY EXHIBIT CHEMICAL OR UNUSUAL ODORS, UNUSUAL COLORING, AND/OR SHEEN. IMMEDIATELY CEASE ALL EXCAVATION, DEWATERING, TRANSPORT, OR DISTURBANCE OF THE SUSPECT MATERIAL UNTIL GIVEN DIRECTION BY THE OWNER'S REPRESENTATIVE.
   B. DISCHARGING POLLUTANTS SUCH AS CHEMICALS, FUELS, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWAGE, AND OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS, IMPOUNDMENTS OR INTO NATURAL OR MAN–MADE CHANNELS LEADING THERETO IS STRICTLY PROHIBITED. ANY SPILLS OR DISCHARGES AS DESCRIBED ABOVE SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.
   C. CONTRACTOR SHALL NOT DISCHARGE TO THE SURFACE WATERS OF THE STATE ANY WASTEWATER GENERATED FROM CUTTING, GRINDING, DRILLING, OR HYDRODEMOLITION OF CONCRETE, INCLUDING ASPHALT WITHOUT AUTHORIZATION FROM THE OWNER.
   D. THE FOLLOWING REQUIREMENTS APPLY:
      - STORM DRAINS MUST BE PROTECTED FROM DUST AND DEBRIS.
      - ANY WATER USED DURING CONCRETE AND ASPHALT WORK (INCLUDING SWEEPING AND SAW–CUTTING) MUST BE CONTAINED AND COLLECTED FOR PROPER DISPOSAL. SUGGESTED CONTROLS INCLUDE WET VACUUM, OR ABSORBENTS.
      - GOOD HOUSEKEEPING PRACTICES MUST BE EMPLOYED AT THE JOBSITE. MINIMIZE DUST.
5. CONCRETE AND GROUT WASHOUT
   A. DO NOT DISCHARGE CONCRETE/GROUT WASHOUT INTO STORM DRAINS, CATCH BASINS OR TO THE SANITARY SEWER SYSTEM. PERFORM WASHING OF CONCRETE TRUCKS IN DESIGNATED AREAS OR AN APPROVED OFFSITE LOCATION.
   B. DESIGNATED AREAS SHOULD BE CLEARLY LABELED. THEY SHOULD BE IN A PIT TO PREVENT RUN–OFF OF WASTE WATER. PLACE DESIGNATED AREAS A MINIMUM OF 50 FEET FROM STORM DRAINS, BODIES OF WATER AND DITCHES. ALL DESIGNATED AREAS SHOULD BE LINED TO PREVENT SEEPAGE AND SHOULD HAVE A BARRIER.
   C. ALTERNATIVE TO A DESIGNATED AREA: PROVIDE A CONCRETE BOX. IF ONLY A SMALL OF CONCRETE WASHINGS IS TO OCCUR, ONE OPTION IS TO LINE A ROLL–OFF BOX. FOR VERY SMALL PROJECTS THIS COULD BE DONE WITH A DRUM.
   D. ONCE CONCRETE WASHOUT HAS HARDENED, BREAK UP AND DISPOSE OF PROPERLY. DISPOSAL OF HARDENED CONCRETE/GROUT SHOULD OCCUR ON A REGULAR BASIS.
   E. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES PROVIDED ONCE THE WASHOUT AREA IS 75% FULL.
6. DEWATERING: UNCONTAMINATED GROUNDWATER AND SURFACE WATER WHICH IS FREE OF SEDIMENT MAY BE DISCHARGED TO A STORM DRAIN. ALL DEWATERING OPERATIONS MUST USE A FILTER (DEWATERING) BAG CONNECTED TO THE END OF THE DISCHARGE PIPE. THE FINAL DISCHARGE MUST BE CLEAR (NO TURBIDITY) AND ON A CLEAN SURFACE (NOT ON EXPOSED SOILS) TO PREVENT THE DISCHARGE FROM PICKING UP SEDIMENT. THE STORM DRAIN INLET SHALL BE PROTECTED WITH AN INLET FILTER. THE CONTRACTOR SHALL ENSURE ROUTINE INSPECTION AND MAINTENANCE OF THE PUMP HOSES & FILTER BAGS DAILY, REPLACE EQUIPMENT WHEN SIGNS OF DETERIORATION ARE EVIDENT AND/OR IF INSTRUCTED BY THE CONSTRUCTION SITE STORM OPERATOR OR OWNER'S REPRESENTATIVE. IF THERE ARE INDICATIONS OF POSSIBLE CONTAMINATION, OR IF THE WATER IS TURBID, IMMEDIATELY CEASE DISCHARGE.

LEGEND

GRAPHIC SCALE: 1 inch = Value feet
0 ## Value ###

- TEMPORARY CONSTRUCTION ENTRANCE
- STABILIZATION BLANKET
- SOILS TYPE BOUNDARY
- LIMITS OF CONSTRUCTION
- SILT FENCE (—— SF ——)
- 16B SOIL TYPE

N

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REVISIONS
07/23/2018 REVISION 1

DATE	PROJ NUMBER	ENG	PROJ MGR	CADD	COUNTY	MUNICIPALITY
	1053-19-0010	Value	Value	Value	Value	Value

CITY OF BATTLE CREEK
BUCKNER DR
COLUMBIA - SESC PLAN

SHEET CS-170

DRAWING PATH: P:\1000_1999\1053\180010_buckner_drive_overpass\Drawings\Civil\Plans_Const\180010SESC_COLUMBIA.dwg Jul 23, 2018 - 3:14pm