

Allegan County Road Commission

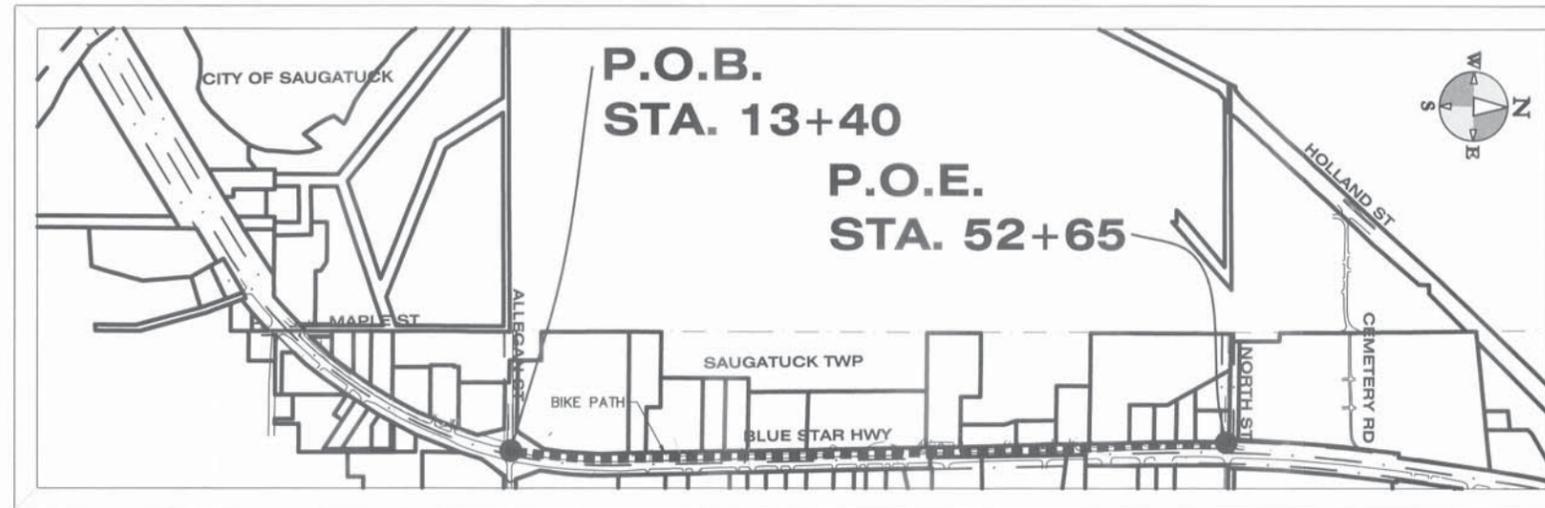
In Cooperation with Michigan Department of Transportation/FHWA

Blue Star Highway Trail - Saugatuck Twp Segment

Control Section: CM-03400 Job No: 120992A Federal Project No: CM-1603(008) Federal Item No: HK1092

UTILITY CONTACTS

GAS	ELECTRIC
MICHIGAN GAS UTILITIES 1-800-401-6402	CONSUMERS ENERGY BILL BRINDLEY 269-337-2338
SEMCO 1-800-624-2019	
TELEPHONE	CABLE
FRONTIER DON SMITH 269-355-3162	COMCAST JOE SCHOPF 269-203-7114
WATER & SEWER SERVICE	
KALAMAZOO LAKE SEWER & WATER AUTHORITY DARYL VANDYKE 269-857-2709	



SITE LOCATION MAP
SCALE: 1" = 500'

TRAFFIC INFORMATION

PRESENT AVG DAILY TRAFFIC	9,290
FUTURE AVG DAILY TRAFFIC	12,000
PERCENT COMMERCIAL	5%
POSTED SPEED	50 MPH
TRAIL DESIGN SPEED	18 MPH

PROJECT DESCRIPTION

0.74 MILES OF 10 FOOT WIDE HMA NON-MOTORIZED PATH INCLUDING GRADING, BOARDWALK SECTIONS, AND SLOPE RESTORATION.

DRAWING INDEX

SHT #	DESCRIPTION
C-0	TITLE SHEET
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ALL STRUCTURES DESIGNED IN ACCORDANCE WITH AASHTO LRFD GUIDE SPECIFICATION FOR THE DESIGN OF PEDESTRIAN BRIDGES, H-10 LOADING AND 90 PSF.

THE WORK COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH MICHIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AS AMENDED BY SUPPLEMENTAL SPECIFICATIONS OR SPECIAL PROVISIONS

THE WORK COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE 2011 MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) AS AMENDED

IMPROVEMENTS COVERED BY THESE PLANS ARE IN ACCORDANCE AASHTO GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, 2012

VERIFY LOCATIONS OF ALL BELOW GRADE UTILITIES PRIOR TO BEGINNING WORK 72 HOURS BEFORE YOU DIG CALL "MISS DIG" AT 1-800-482-7171

WHERE THE FOLLOWING ITEMS ARE CALLED FOR ON THE PLANS, THEY ARE TO BE CONSTRUCTED ACCORDING TO THE MDOT STANDARD PLAN GIVEN BELOW UNLESS OTHERWISE INDICATED:

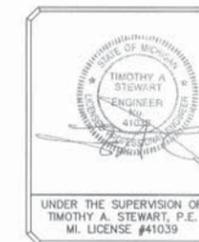
SIDEWALK RAMP AND DETECTABLE WARNING DETAILS	R-28-J*
GRANULAR BLANKET, UNDERDRAINS, OUTLET ENDINGS FOR	R-80-E
BEDDING AND FILLING AROUND PIPE CULVERTS	R-82-D
STEEL END SECTION	R-88-D
CULVERT SLOPED END SECTION	R-95-F
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R-96-E
SEEDING AND TREE PLANTING	R-100-H
GRADING CROSS SECTIONS	R-105-D
GROUND DRIVEN SIGN SUPPORT FOR TEMP SIGNS	WZD-100-A
TEMPORARY TRAFFIC CONTROL DEVICES	WZD-125-E

*SPECIAL DETAIL, INCLUDED IN THE PROPOSAL

ENGINEER



hurley & stewart, llc
2800 south 11th street
kalamazoo, michigan 49009
269.552.4960 fax 269.552.4961
www.hurleystewart.com



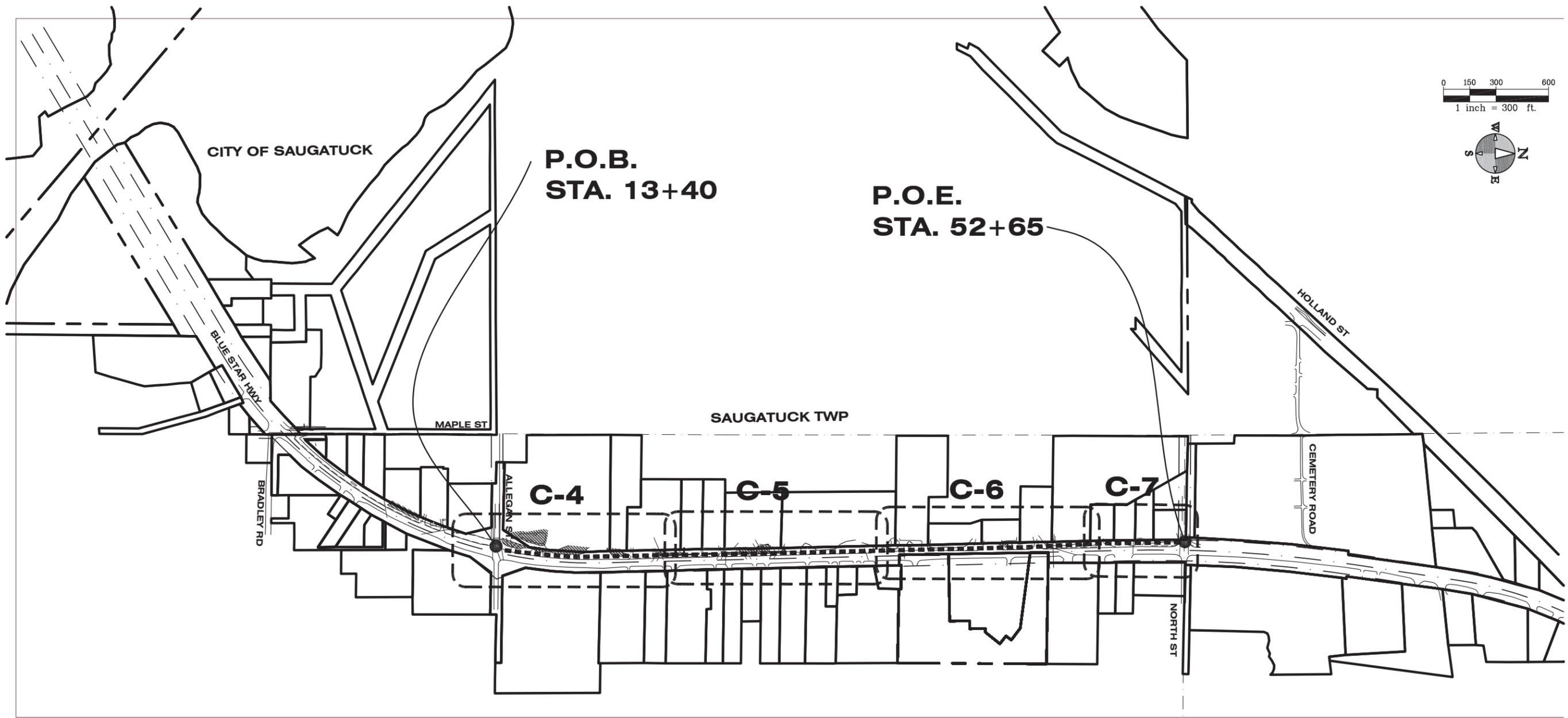
ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.

COUNTY ROAD COMMISSION APPROVAL		
BY: <u>Bruce D. Culver</u>	CHAIR	<u>11-4-16</u> DATE
BY: <u>Robert Kaarlje</u>	VICE-CHAIR	<u>11-7-16</u> DATE
BY: <u>John Kleinhekse</u>	MEMBER	<u>11-3-16</u> DATE



ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
ALLEGAN, MICHIGAN 49010
269.673.2184

ISSUED FOR:
FINAL REVISED MDOT LETTING SUBMITTAL
11/1/16



ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.
 FIELD WORK PERFORMED BY:
 LANDTECH PROFESSIONAL SURVEYING

hurley & stewart, llc
 2800 south 11th street
 kalamazoo, michigan 49009
 269.552.4960 fax 269.552.4961
 www.hurleystewart.com

Job No. 14-024D P.M. T&S DTL. --- QA/QC 11/1/16

ISSUED FOR/REVISIONS:	DATE
MDOT CI SUBMITTAL	4/17/16
MDOT BID LETTING SUBMITTAL	6/17/16
REVISED MDOT BID LETTING SUBMITTAL	10/13/16
FINAL REVISED MDOT LETTING SUBMITTAL	11/1/16

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Sheet Title: **KEY PLAN**
 Project: **BLUE STAR HIGHWAY TRAIL - SAUGATUCK TWP**
 Client: **ALLEGAN COUNTY ROAD COMMISSION**

11/1/16
 Sheet
C-1

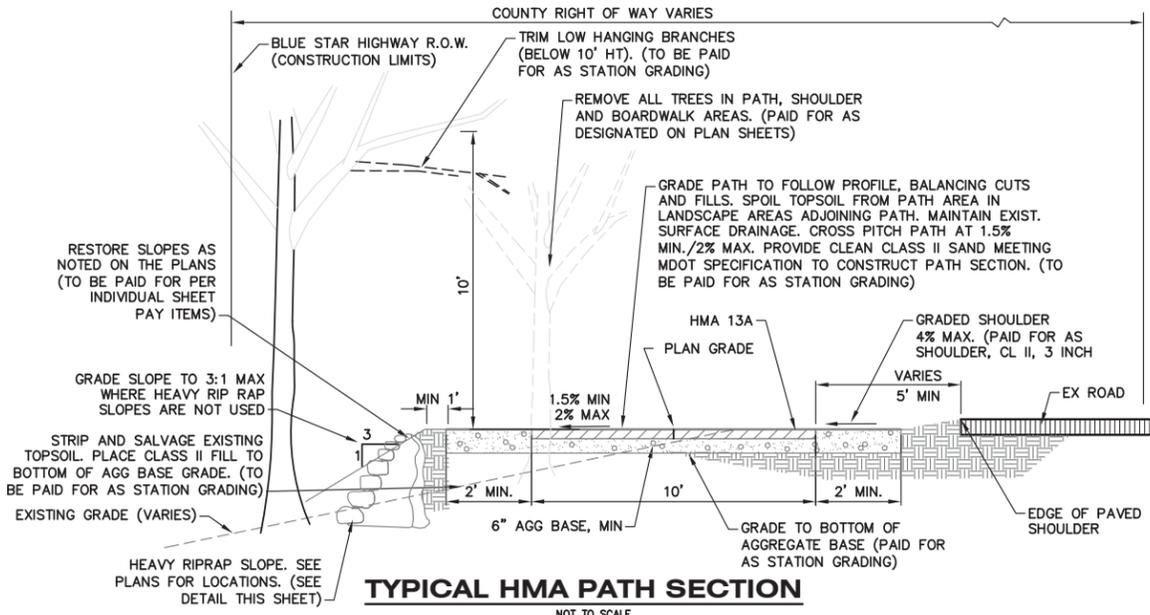
- NOTES:**
1. SURVEY OF EXISTING CONDITIONS PROVIDED BY LANDTECH PROFESSIONAL SURVEYING AND ALLEGAN COUNTY GIS.
 2. ALL NEW PAVEMENTS AND NEW LAWN AREAS ARE INTENDED TO DRAIN FREELY WITH NO PONDING. IF THIS CANNOT BE ACHIEVED USING PROPOSED GRADES AS INDICATED, NOTIFY ENGINEERS IMMEDIATELY FOR CLARIFICATION.
 3. VERIFY LOCATIONS OF ALL BELOW GRADE UTILITIES PRIOR TO BEGINNING WORK. 72 HOURS BEFORE YOU DIG CALL "MISS DIG" AT 1-800-482-7171.
 4. PROTECT ALL TREES AND EXISTING FEATURES TO REMAIN AS SPECIFIED (TO BE PAID FOR AS STATION GRADING).
 5. PLACE 6" MINIMUM TOPSOIL, FINE GRADE AND ESTABLISH TURF IN ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. (TO BE PAID FOR AS SLOPE RESTORATION)
 6. SOILS EXCAVATED FOR HMA PAVING INSTALLATION SHALL BE DISPOSED OF ON SITE AS SPOIL MATERIAL IN OPEN AREAS AND SEED. DO NOT INTERRUPT EXISTING SURFACE DRAINAGE. EXCESS MATERIAL MAY BE TRUCKED OFF SITE. (TO BE PAID FOR AS STATION GRADING)
 7. PAVEMENT DIMENSIONS AND RADII ARE TO EDGE PAVEMENT, BACK OF CURB & CENTERLINE OF PATH.
 8. ALL TREES WITHIN THE SHOULDER OF THE HMA PATH SHALL BE REMOVED. CONTRACTOR IS RESPONSIBLE TO EXAMINE THE SITE TO DETERMINE LIMITS OF REMOVALS. SEE DETAIL THIS SHEET. (TO BE PAID FOR AS STATION GRADING).
 9. TAPER PATH FROM 14' TO 10' WIDTH AT ALL BOARDWALK AND BRIDGE SECTIONS. TAPER TO BE 25' IN LENGTH AND TO BE UNIFORMLY CENTERED ON THE BOARDWALK OR BRIDGE SECTION.
 10. GEOTEXTILE LINER IS TO BE PROVIDED UNDER ALL RIPRAP AND IS INCLUDED IN THE RIPRAP PAY ITEM.
 11. ALL ROADWAY SIGNS AFFECTED BY TRAIL CONSTRUCTION ALONG BLUE STAR HIGHWAY SHALL BE RELOCATED IN ACCORDANCE WITH MMUTCD CHAPTER 2A. ALL SIGN RELOCATIONS SHALL ALSO BE COORDINATED WITH ACRC.
 12. GEOTEXTILE LINER IS TO BE PROVIDED UNDER ALL RIPRAP AND IS INCLUDED IN THE RIPRAP PAY ITEM.
 13. EARTHWORK QUANTITIES HAVE BEEN ESTIMATED TO BE:
CUT = 275 CYD
FILL = 1,200 CYD
THESE NUMBERS ARE FOR INFORMATIONAL PURPOSES ONLY AND EXCLUDE AGGREGATE BASE, HMA QUANTITIES, AND EARTHWORK INVOLVED TO CONSTRUCT BOARDWALK STARTS. CONTRACTOR TO VERIFY EARTHWORK QUANTITIES. ALL EARTHWORK TO BE PAID FOR AS STATION GRADING.

MISCELLANEOUS QUANTITIES

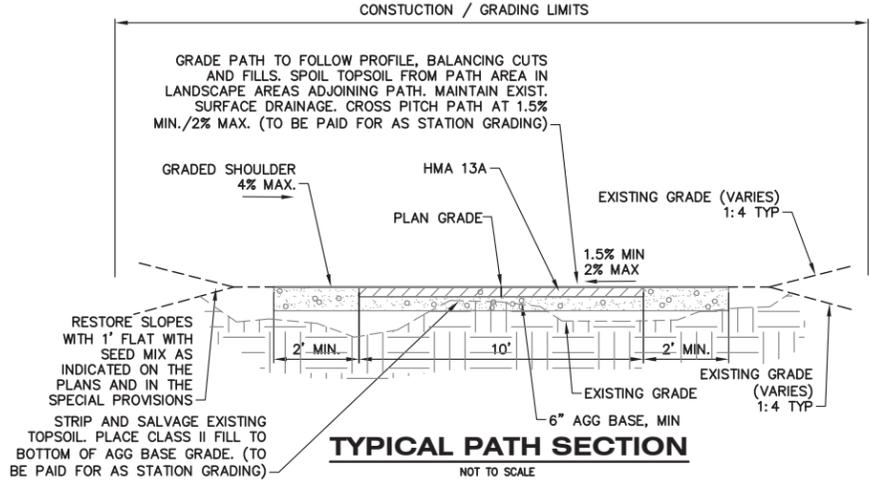
- 100 Syd Pavt, Rem
- 350 Cyd Subgrade Undercutting, Type II
- 0.1 Acre Clearing
- 350 Ft Erosion Control, Silt Fence
- 25 Lft Culv, Cl B, 18 inch
- 2 Ea Culv End Sect, 18 inch
- 10 Ton HMA Approach
- 24 Ft Pedestrian Railing
- 10 Ft Boardwalk
- 70 Ft Fence, Split Rail
- 950 Ft Post, Steel, 3 lb
- 250 Sft Sign, Type IIIA
- 130 Sft Sign, Type IIIB
- 10 Syd Riprap, Heavy, 1 on 1 Slope
- 75 Syd Riprap, Plain
- 200 Syd Slope Restoration, Type A
- 125 Syd Slope Restoration, Type B
- 2750 Syd Mulch Blanket, High Velocity

MAINTAINING TRAFFIC QUANTITIES

- 1 LS Minor Traf Devices
- 86 Ea Plastic Drum, High Intensity, Furn
- 86 Ea Plastic Drum, High Intensity, Oper
- 1 Ea Lighted Arrow, Type B, Furn
- 1 Ea Lighted Arrow, Type B, Oper
- 400 Sft Sign, Type B, Temp, Prismatic, Furn
- 400 Sft Sign, Type B, Temp, Prismatic, Oper
- 4 Ea Barricade, Type III, High Intensity, Lighted, Furn
- 4 Ea Barricade, Type III, High Intensity, Lighted, Oper



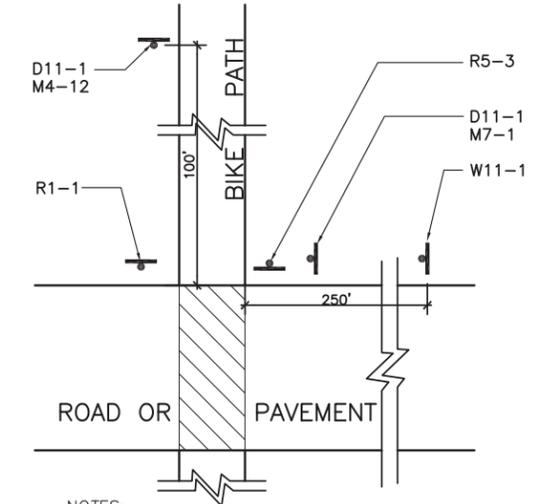
TYPICAL HMA PATH SECTION
NOT TO SCALE
APPLY TO STATION: STA. 44+50 TO STA. 46+00



TYPICAL PATH SECTION
NOT TO SCALE
APPLY TO STATION: STA. 13+40 TO STA. 44+50
STA. 46+00 TO STA. 52+65
* MINUS BOARDWALK SECTIONS

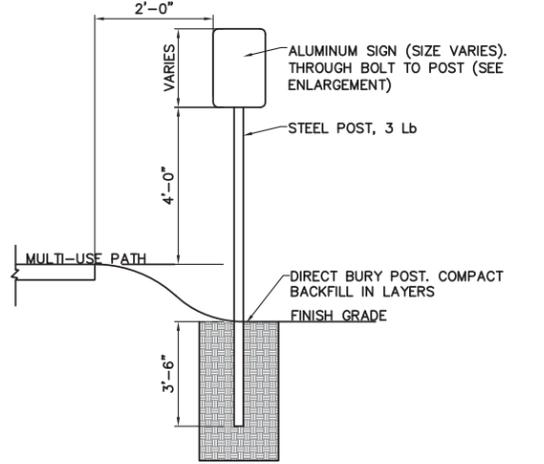


TRAIL SIGN PLACEMENT
NOT TO SCALE

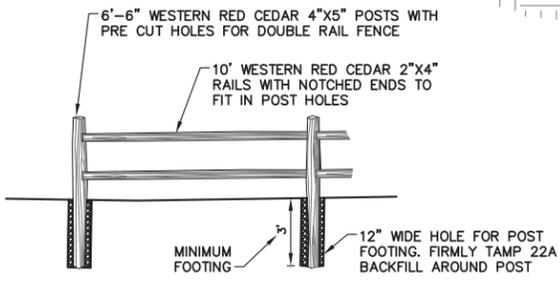


- NOTES:**
- SIGNS ALONG BIKE PATH SHALL BE MOUNTED ON 3 LB STEEL POSTS.
 - SIGN LOCATIONS TO BE IDENTICAL ON BOTH SIDES OF THE ROAD UNLESS NOTED OTHERWISE ON PLAN.

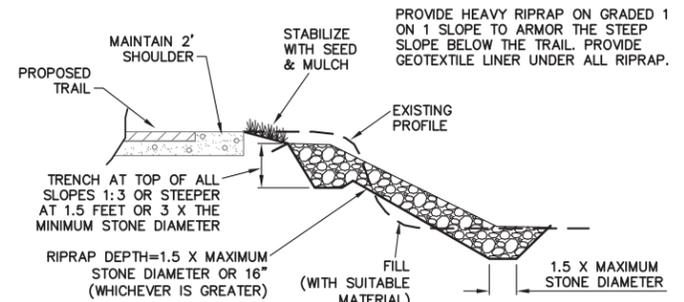
TYPICAL INTERSECTION TREATMENT
NOT TO SCALE
SIGN DESIGNATIONS ARE FROM AND SHALL COMPLY WITH THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.



SIGN PLACEMENT SECTION



SPLIT-RAIL FENCE DETAIL
NOT TO SCALE



HEAVY RIPRAP SLOPE DETAIL
NOT TO SCALE

HOT MIX ASPHALT APPLICATION ESTIMATE					
IDENTITY NO.	ITEM	AWI	RATE PER SYD	PERFORMANCE GRADE	REMARKS
13A	HMA-13A	260	330 lb	58-28	TOP COURSE
13A	HMA APPROACH	260	275 lb	58-28	LEVELING COURSE
13A	HMA APPROACH	260	165 lb	58-28	TOP COURSE
13A	* HMA-13A	260	275 lb	58-28	LEVELING COURSE
13A	* HMA-13A	260	165 lb	58-28	TOP COURSE

* FOR INDUSTRIAL / COMMERCIAL DRIVES AS NOTED ON PLANS

PERMANENT SIGNS

SIGN TYPE	SIZE	COLORS	SIGN QUANT.	POST QUANT.	CHARACTERS	COMMENTS
CAUTION STOP AHEAD (W3-1)	18"x18"		2	2		
TRAFFIC KEEP RIGHT	18"x12"		9	0	UP TO 75	ALL SIGNS PLACED ON HILL SIGN POST
STOP SIGN (R1-1)	18"x18"		2	2		
NO MOTOR VEHICLES (R5-3)	24"x24"		2	0		PLACED ON STOP SIGN POST
BIKE ROUTE (D11-1)	24"x18"		2	2		
END	12"x4"		2	0		PLACED ON BIKE SYMBOL POST
CURVE (W1-1)	18"x18"		1	1		
CURVE (W1-2)	18"x18"		1	1		
CURVE (W1-4)	18"x18"		2	2		
CURVE (W1-5)	18"x18"		1	1		
HILL (W7-5)	18"x18"		9	9		
LOOK BOTH WAYS	18"x9"		2	0		PLACED ON STOP SIGN POST

- NOTE:**
1. ALL SIGNS SHALL BE FIELD LOCATED BY THE ENGINEER.
 2. REGULATORY/INFORMATION SIGNS TO BE PAID FOR AS SIGN TYPE III (SEE QUANTITIES THIS SHEET).

REGULATORY/INFORMATION SIGN DETAIL

hurley & stewart, llc
2800 south 11th street
kalamazoo, michigan 49009
269.552.4960 fax 269.552.4961
www.hurleystewart.com

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ISSUED FOR REVISIONS: 4/17/16
MDOT BID SUBMITTAL 6/17/16
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PROJECT NOTES AND DETAILS
BLUE STAR HIGHWAY TRAIL - SAUGATUCK TWP
ALLEGAN COUNTY ROAD COMMISSION

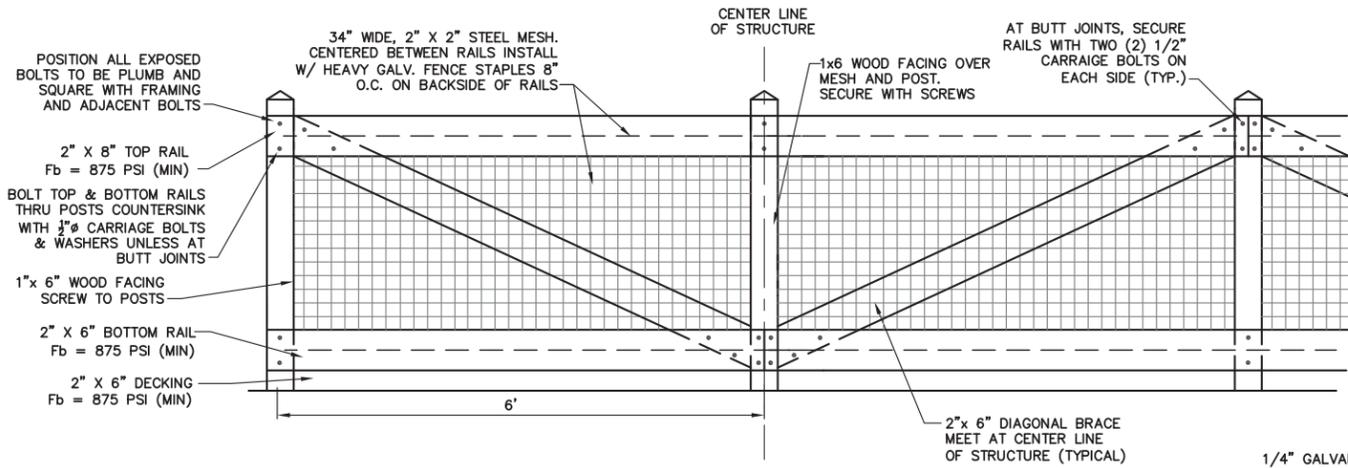
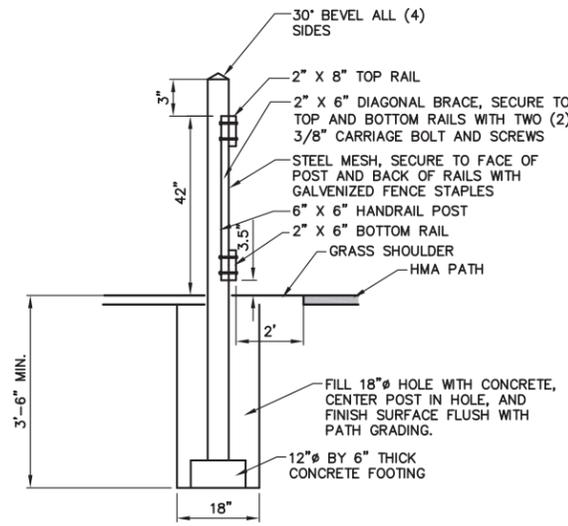
LEGEND

	PROPOSED CONTOUR HIGHLIGHTED		EXISTING CONTOUR HIGHLIGHTED
	PROPOSED CONTOUR NORMAL		EXISTING CONTOUR NORMAL
	PROPOSED SANITARY SEWER		EXISTING SANITARY SEWER
	PROPOSED STORM SEWER		EXISTING STORM SEWER
	PROPOSED CATV		EXISTING CATV
	PROP ELEC (OVERHEAD)		EXIST ELEC (OVERHEAD)
	PROP ELEC (UNDERGROUND)		EXIST ELEC (UNDERGROUND)
	PROPOSED FIBEROPTIC CABLE		EXISTING FIBEROPTIC CABLE
	PROPOSED GAS		EXISTING GAS
	PROPOSED TELEPHONE		EXISTING TELEPHONE
	PROPOSED WATER MAIN		EXISTING WATER MAIN
	PROPOSED TREELINE		EXISTING TREELINE
	PROPOSED FENCE		EXISTING FENCE
	PROPOSED SILT FENCE		EXISTING WETLAND
	CURB CATCH BASIN		GAS METER
	SQUARE CATCH BASIN		TELEPHONE MANHOLE
	ROUND CATCH BASIN		TELEPHONE PEDestal
	MANHOLE STORM		TELEPHONE POLE
	MANHOLE SANITARY		PROPOSED SPOT GRADE
	SANITARY CLEANOUT		EXISTING SPOT GRADE
	FIRE HYDRANT		BENCH MARK
	WATER VALVE		POST/BOLLARD
	WATER VALVE IN VAULT		SIGN
	WATER METER		MAILBOX
	WATER REDUCER		SOIL BORING
	LIGHT POLE		MONITOR WELL
	POWER POLE		
	GUY WIRE		
	ELECTRIC MANHOLE		
	ELECTRIC METER		

NOTE: ALL SYMBOLS IN THIS LEGEND ARE SHOWN AS EXISTING. PROPOSED SYMBOLS WILL USE THE CORRESPONDING SYMBOL WITH A THICKER LINE.

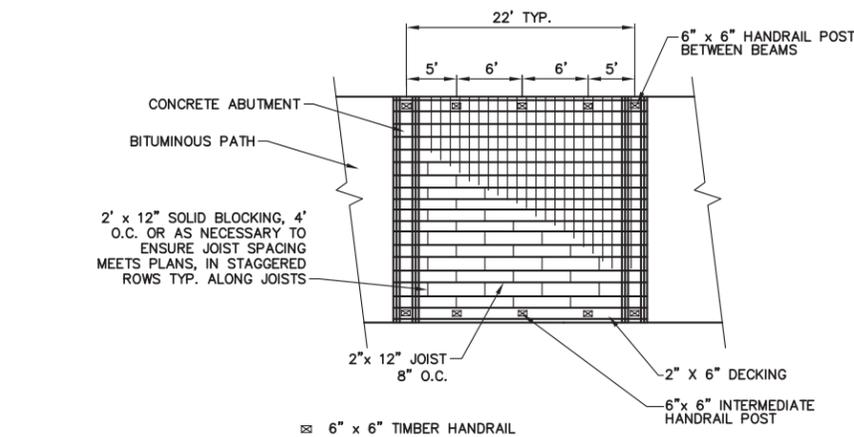
PEDESTRIAN RAIL ELEVATION (OUTSIDE BOARDWALK FOOTPRINT)

NO SCALE



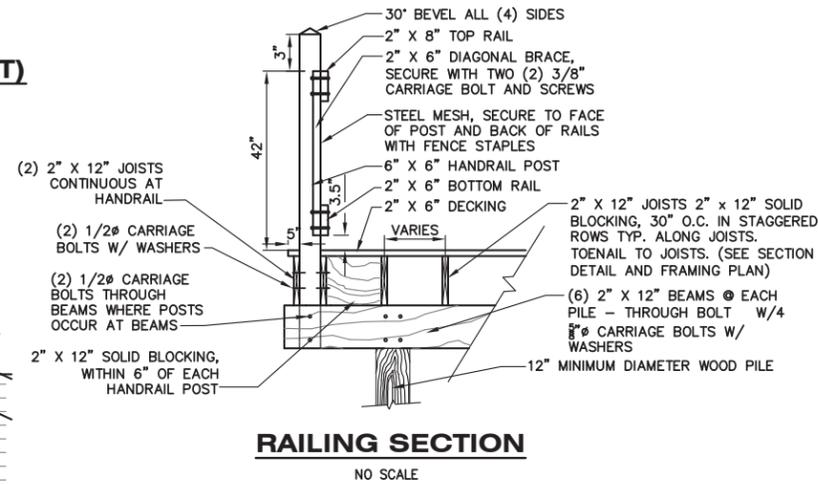
RAILING ELEVATION

NO SCALE



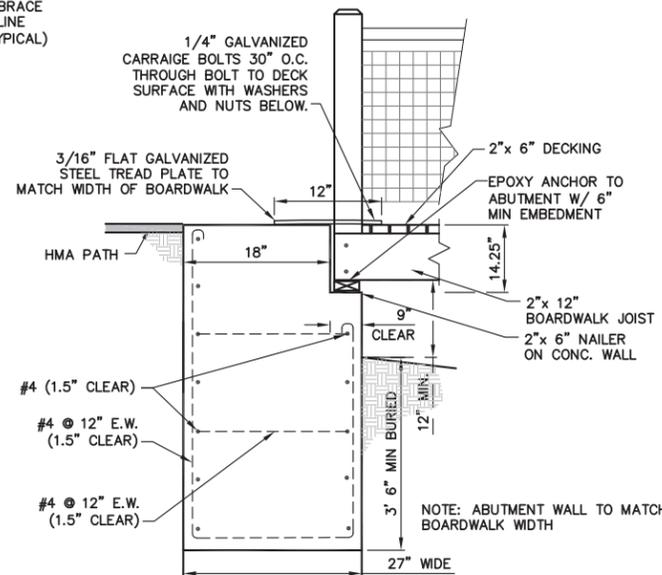
CREEK CROSSING FRAMING PLAN

NO SCALE
APPLY TO STATION: STA. 29+77 TO STA. 29+99



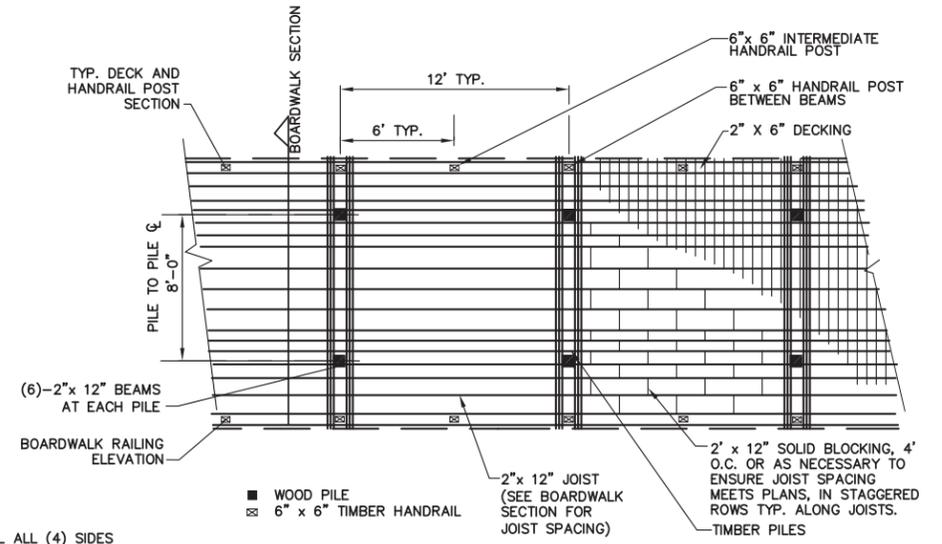
RAILING SECTION

NO SCALE



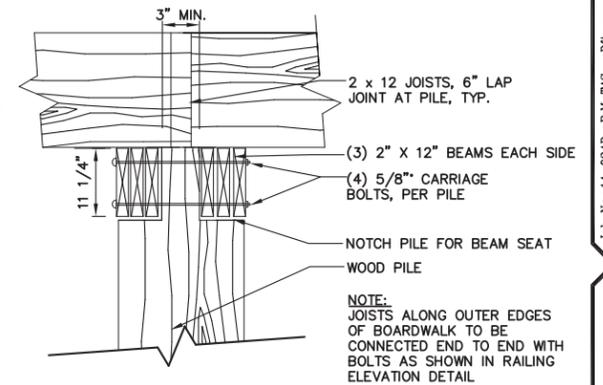
BOARDWALK START DETAIL

NO SCALE



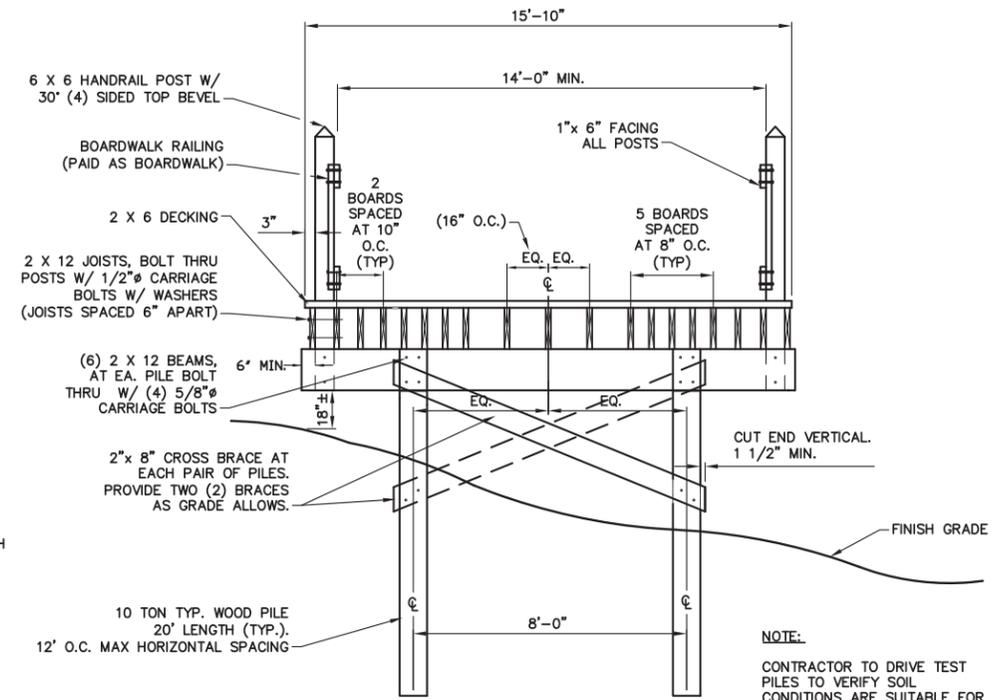
FRAMING PLAN

NO SCALE



BEAM/PILE CONNECTION

NO SCALE



BOARDWALK SECTION

NO SCALE

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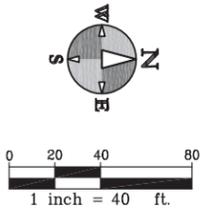
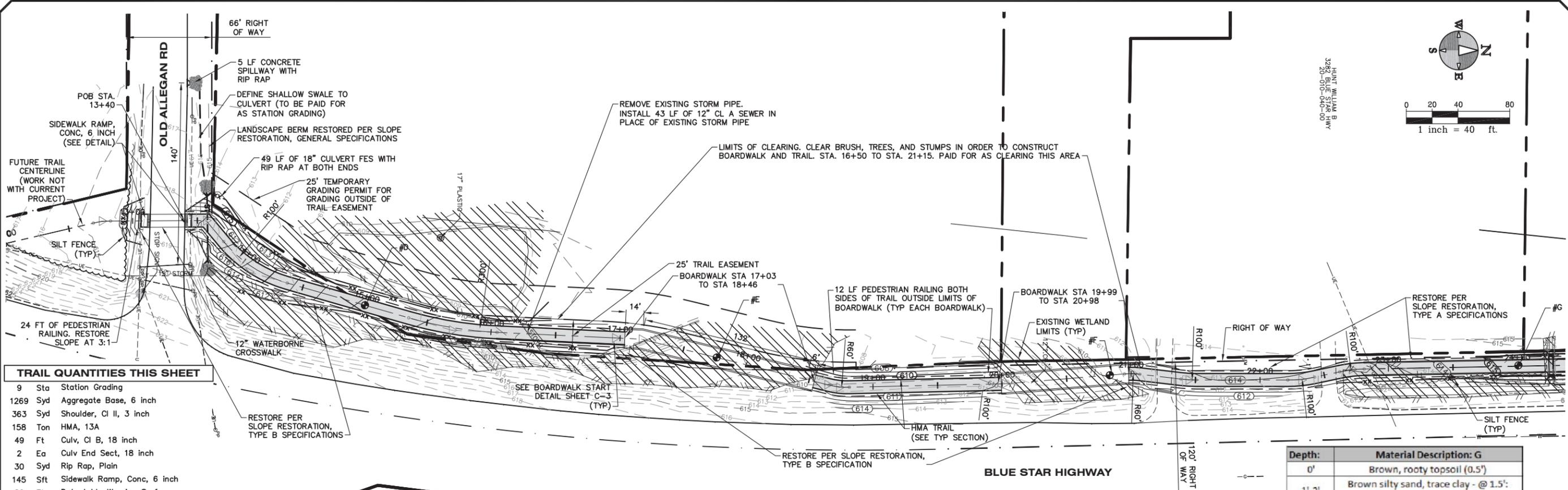
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BOARDWALK DETAILS
BLUE STAR HIGHWAY TRAIL - SAUGATUCK TWP
ALLEGAN COUNTY ROAD COMMISSION

Sheet Title:
Project:
Client:
11/1/16
Sheet

C-3

NOTE: CONTRACTOR TO DRIVE TEST PILES TO VERIFY SOIL CONDITIONS ARE SUITABLE FOR PILES TO BE CONSTRUCTED AT BEARING CAPACITY AND LENGTH AS SPECIFIED.



TRAIL QUANTITIES THIS SHEET

- 9 Sta Station Grading
- 1269 Syd Aggregate Base, 6 inch
- 363 Syd Shoulder, Cl II, 3 inch
- 158 Ton HMA, 13A
- 49 Ft Culv, Cl B, 18 inch
- 2 Ea Culv End Sect, 18 inch
- 30 Syd Rip Rap, Plain
- 145 Sft Sidewalk Ramp, Conc, 6 inch
- 20 Ft Detectable Warning Surface
- 54 Ft Pavt Mrkg, Waterborne, 12 inch, White
- 1047 Ft Erosion Control, Silt Fence
- 1235 Syd Slope Restoration, Type A
- 200 Syd Slope Restoration, Type B
- 5 Ft Spillway, Conc
- 43 Ft Sewer, Rem, Less than 24 inch
- 43 Ft Sewer, Cl A, 12 inch, Tr Det B
- 114 Ft Pedestrian Railing
- 0.35 Acre Clearing

BOARDWALK QUANTITIES THIS SHEET

- 817 Ft Pile, Treated Timber, Furn
- 817 Ft Pile, Treated Timber, Driven
- 2 Ea Test Pile, Treated Timber
- 240 Ft Boardwalk
- 1152 Lb Enforcement, Steel, Epoxy Coated
- 30 Cyd Substructure Conc

Depth:	Material Description: D
0'	Clayey topsoil, black roots 0.5' +/-
1'	Dark sand, silty
2'	Light brown sand, trace silt
3'	Brown, wet, stiff clay w/ dark
4'	Auger refusal @ 4' (rocks/gravel)
Groundwater:	3' +/-

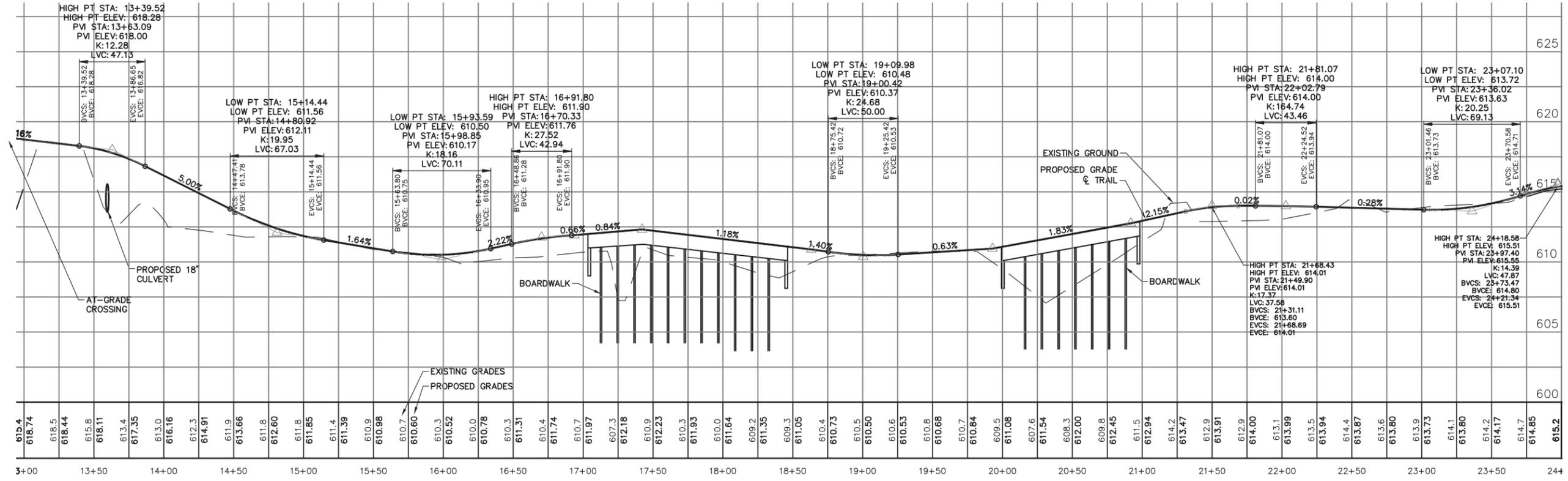
Depth:	Material Description: E
0'	Dark, rooty topsoil (0.5')
1'	Blackish brown, soft clay, wet
2'-5.5'	Very stiff, wet, dark gray clay
Groundwater:	1' +/- (wetland area near stream)

Depth:	Material Description: F
0'	Topsoil (0.5')
1'-5.5'	Wet, brown, dark stiff clay
Groundwater:	1' +/-

Depth:	Material Description: G
0'	Brown, rooty topsoil (0.5')
1'-2'	Brown silty sand, trace clay - @ 1.5': reddish brown sand, coarse
3'	Red coarse sand, some gravel
4'	Auger refusal @ 3' @ two different locations (rocks/gravel)
Groundwater:	Not encountered



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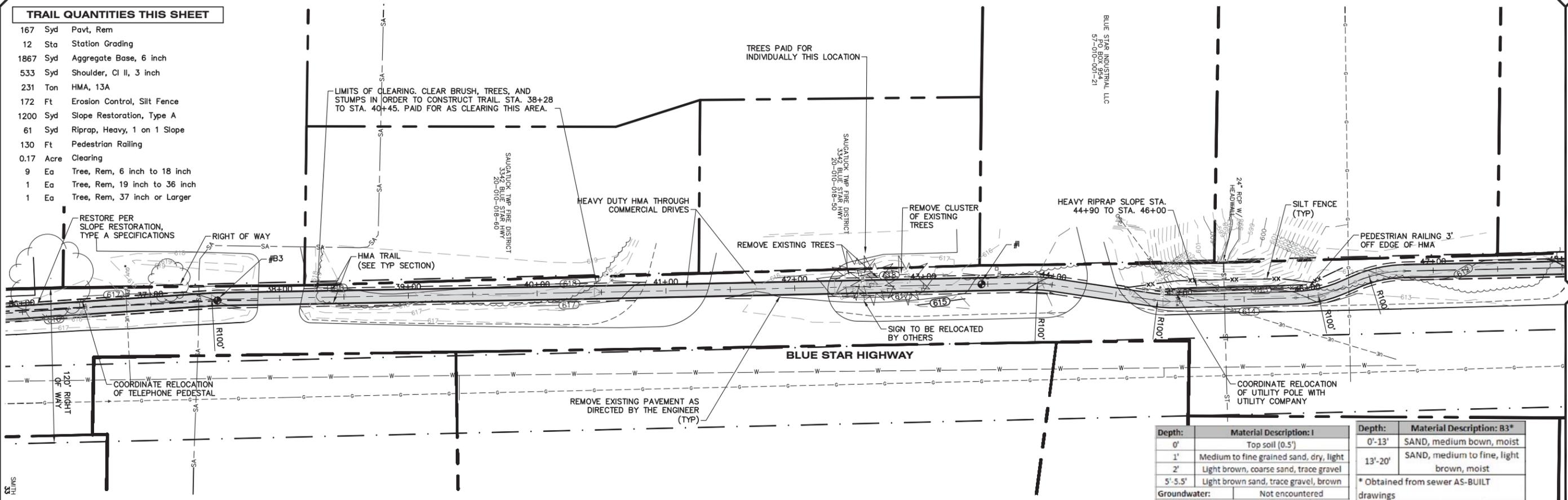
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Sheet Title: **NORTH SEGMENT STA 13+40 TO STA 24+00**
 Project: **BLUE STAR HIGHWAY TRAIL - SAUGATUCK TWP**
 Client: **ALLEGAN COUNTY ROAD COMMISSION**

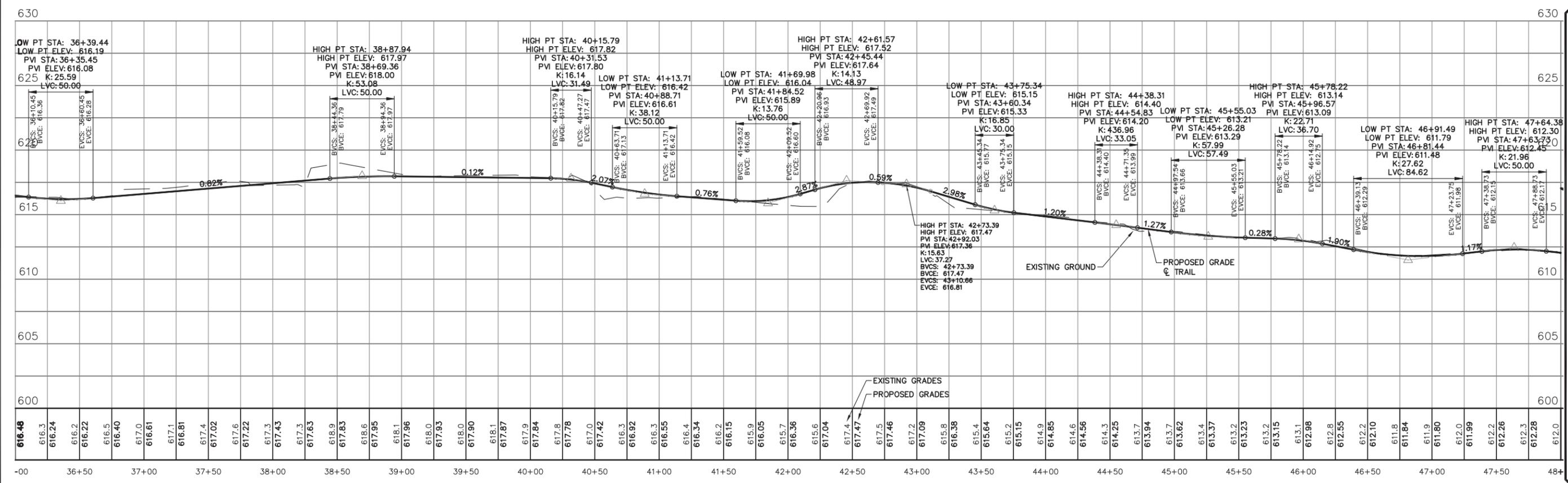
11/1/16
 Sheet
C-4

TRAIL QUANTITIES THIS SHEET

- 167 Syd Pavt, Rem
- 12 Sta Station Grading
- 1867 Syd Aggregate Base, 6 inch
- 533 Syd Shoulder, C II, 3 inch
- 231 Ton HMA, 13A
- 172 Ft Erosion Control, Silt Fence
- 1200 Syd Slope Restoration, Type A
- 61 Syd Riprap, Heavy, 1 on 1 Slope
- 130 Ft Pedestrian Railing
- 0.17 Acre Clearing
- 9 Ea Tree, Rem, 6 inch to 18 inch
- 1 Ea Tree, Rem, 19 inch to 36 inch
- 1 Ea Tree, Rem, 37 inch or Larger



Depth:	Material Description: I	Depth:	Material Description: B3*
0'	Top soil (0.5')	0'-13'	SAND, medium bown, moist
1'	Medium to fine grained sand, dry, light	13'-20'	SAND, medium to fine, light brown, moist
2'	Light brown, coarse sand, trace gravel	* Obtained from sewer AS-BUILT drawings	
5'-5.5'	Light brown sand, trace gravel, brown		
Groundwater:	Not encountered		



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Job No. 14-024D P.M.T.S. DTL. --- QA/QC 11/1/16

ISSUED FOR REVISIONS: 4/17/16
MOT BID LETTING SUBMITTAL 6/17/16
REVISED MDOT BID LETTING SUBMITTAL 10/13/16
FINAL REVISED MDOT LETTING SUBMITTAL 11/1/16

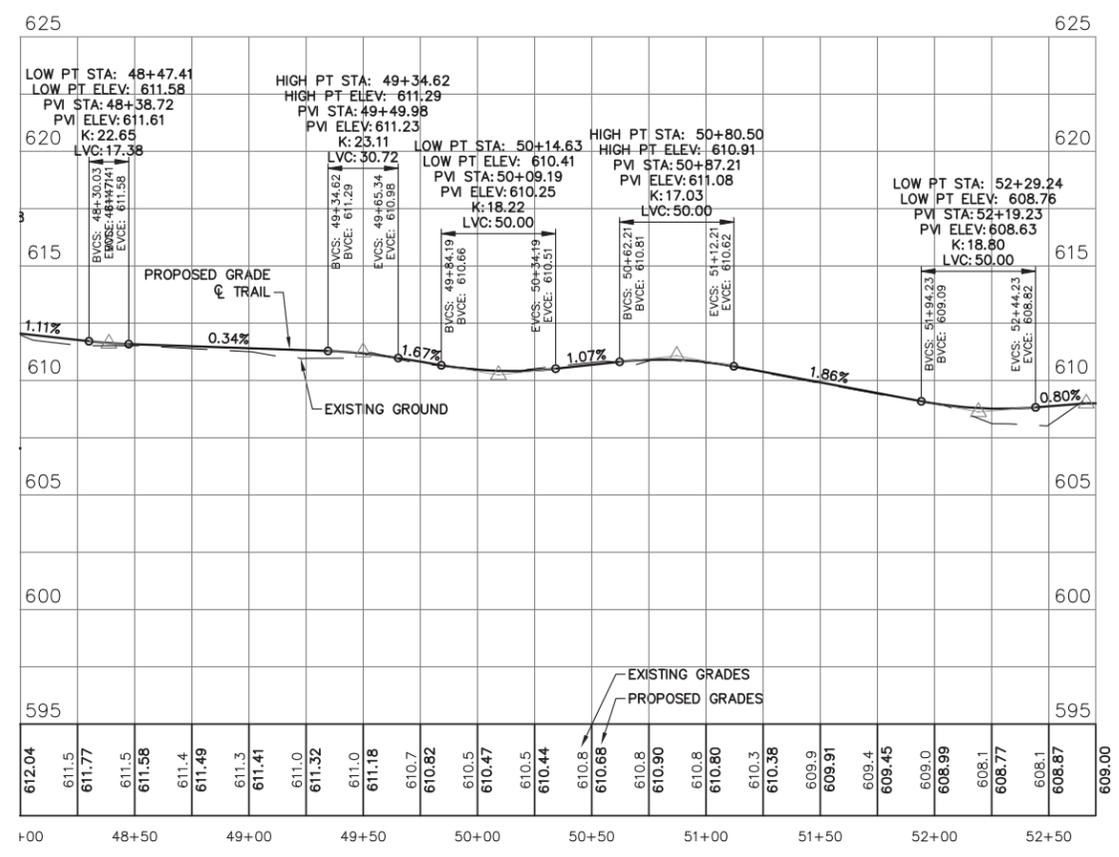
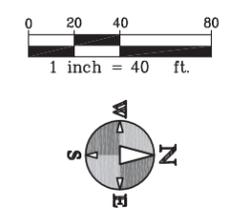
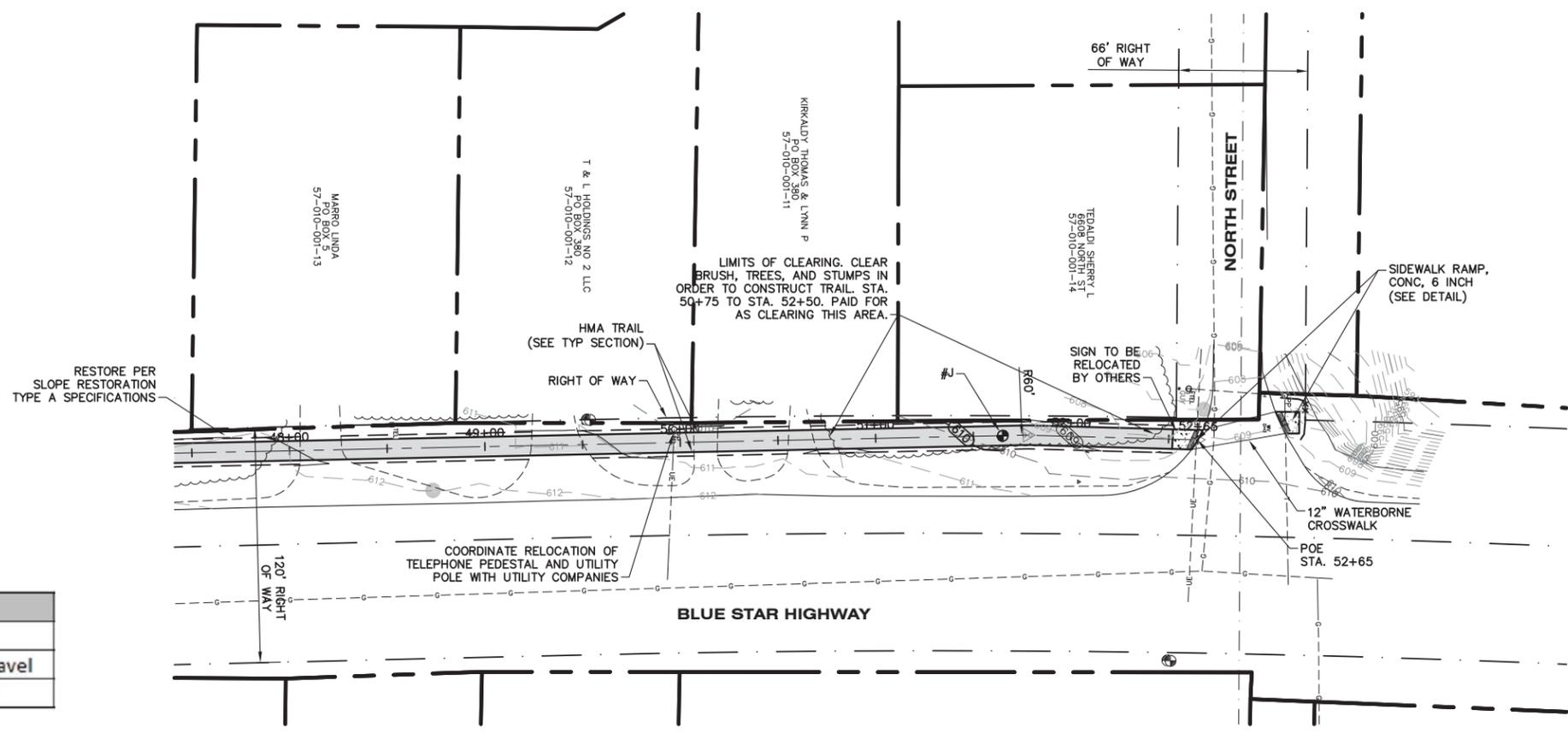
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Sheet Title: NORTH SEGMENT STA 36+00 TO STA 48+00
Project: BLUE STAR HIGHWAY TRAIL - SAUGATUCK TWP
Client: ALLEGAN COUNTY ROAD COMMISSION

TRAIL QUANTITIES THIS SHEET

5	Sta	Station Grading
733	Syd	Aggregate Base, 6 inch
226	Syd	Shoulder, Cl II, 3 inch
91	Ton	HMA, 13A
6	Ton	HMA Approach
229	Sft	Sidewalk Ramp, Conc, 6 inch
20	Ft	Detectable Warning Surface
87	Ft	Pavt Mrkg, Waterborne, 12 inch, White
310	Syd	Slope Restoration, Type A
0.08	Acre	Clearing

Depth:	Material Description: J
0'	Topsoil (0.5')
1'-6'	Light brown coarse sand, trace gravel
Groundwater:	Not encountered



ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.

FIELD WORK PERFORMED BY:
LANDTECH PROFESSIONAL SURVEYING

Job No. 14-024D P.M.T.S. DTL. --- QA/QC 11/1/16

ISSUED FOR REVISIONS: 4/17/16

MDOT CI SUBMITTAL: 6/17/16

MDOT BID LETTING SUBMITTAL: 10/13/16

REVISED MDOT BID LETTING SUBMITTAL: 11/1/16

FINAL REVISED MDOT LETTING SUBMITTAL: 11/1/16

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Sheet Title: **NORTH SEGMENT STA 48+00 TO STA 52+65**

Project: **BLUE STAR HIGHWAY TRAIL - SAUGATUCK TWP**

Client: **ALLEGAN COUNTY ROAD COMMISSION**



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