

LIVONIA STEVENSON HIGH SCHOOL DRAIN OUTFALL EROSION REPAIR

ENGINEERING PLANS

33500 SIX MILE ROAD,
LIVONIA, MICHIGAN 48152

NTH PROJECT NO. 22000694

NOTE:
CONTRACTOR IS RESPONSIBLE FOR
ALL PERMITTING FEES ASSOCIATED
WITH THIS PROJECT

LIST OF ABBREVIATIONS

@	AT	FM	FORCEMAIN	PT	POINT
+	CENTERLINE	FNDN	FOUNDATION	POT	POINT OF TANGENCY
°	DEGREE OR DEGREES	FO	FIBER OPTIC	PVC	POLYVINYL CHLORIDE
Ø	DIAMETER	FT	FOOT OR FEET	PVMT	PAVEMENT
'	FOOT, FEET	FTG	FOOTING	PZ	PNEUMATIC PIEZOMETER
"	INCH, INCHES	FWY	FREEWAY		
#	NUMBER OR POUND			R	RADIUS
±	PLUS OR MINUS	G	GAUGE	RCP	REINFORCED CONCRETE PIPE
		GALV	GALVANIZED	RD	ROAD
A	ANCHOR BOLT	GMP	GROUND MONITORING POINT	REINF	REINFORCED/REINFORCEMENT
AB	ACRE(S)	GB	GRADE BEAM	REQD	REQUIRED
AC	APPROXIMATE	GP	GUSSET PLATE	R.O.W.	RIGHT OF WAY
ARCH	ARCHITECTURAL	GS	GROUND SURFACE	RR	RAILROAD
ASPH	ASPHALT	GR	GRADE	RTNG	RETAINING
ASTM	AMERICAN STANDARDS AND TESTING MATERIALS	GV&W	GATE VALVE AND WELL		
AVG	AVERAGE	GW	GATE WELL	S	SOUTH
		H	HIGH/HORIZONTAL	SAN	SANITARY
B	BOTTOM	HGL	HYDRAULIC GRADE LINE	SB	SOIL BORING
BIT	BITUMINOUS	HOR	HORIZONTAL	SC	SHEAR CONNECTOR/SHEAR CONNECTION
BLDG	BUILDING	HP	HIGH PRESSURE	SCH	SCHEDULE
BM	BENCHMARK	HT	HEIGHT	SE	SOUTHEAST
B.O.	BLOW OFF			SEC	SECTION
BOF	BOTTOM OF FOUNDATION	I	INCLINOMETER	SESC	SOIL EROSION AND SEDIMENT CONTROL
BP	BASE PLATE	ID	INNER DIAMETER	SF	SQUARE FOOT
BRG	BEARING	I.E.	INVERT ELEVATION	SHT	SHEET
BRKT	BRACKET	IN	INCH(ES)	SIM	SIMILAR
BSMT	BASEMENT	INV	INVERT	SPA	SPACE/SPACING
BW	BOTTOM OF WALL	J	JOIST	SL	SPLICE LENGTH
		JT	JOINT	SLG	SLAB ON GRADE
C	CATCH BASIN	L	LENGTH/LONG	SQ	SQUARE
C-C	CENTER TO CENTER	LBS	POUNDS	SS	STAINLESS STEEL
CF	CUBIC FEET	LF	LINEAR FEET	SSP	STEEL SHEET PILE
CFS	CUBIC FEET PER SECOND	LVL	LEVEL	STA	STATION
CI	CAST IRON			STD	STANDARD
CIP	CAST-IN-PLACE			STIFF	STIFFENER
CJ	CONTROL JOINT			STL	STEEL
CLR	CLEAR			STM	STORM
CMP	CORRUGATED METAL PIPE			STRUC	STRUCTURAL
CMU	CONCRETE MASONRY UNIT			SUP	SUPPORT
CNJ	CONSTRUCTION JOINT	M	METER	SW	SOUTHWEST
CO	CLEAN OUT	M	METER	S/W	SIDEWALK
COL	COLUMN	MAS	MASONRY	SWM	STORMWATER MANAGEMENT
CONC	CONCRETE	MATL	MATERIAL	SY	SQUARE YARDS
CONT	CONTINUOUS	MAX	MAXIMUM	T	TOP
CONST	CONSTRUCTION	MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION	T	TOP
COV	COVER	MECH	MECHANICAL	TB	TEST BORING
CP	CAP PLATE	MH	MANHOLE	T&B	TOP AND BOTTOM
CSO	COMBINED SEWER OUTFALL	MJ	MECHANICAL JOINT	TC	TOP OF CONCRETE
CTV	CABLE TELEVISION	MTD	MANUFACTURED TREATMENT DEVICE	TEMP	TEMPORARY
		MTL	METAL	THK	THICK OR THICKNESS
		MIN	MINIMUM	TP	TURNING POINT
		mm	MILLIMETER	TO	TOP OF
		MW	MONITORING WELL	TOF	TOP OF FOUNDATION
				TOPO	TOPOGRAPHIC
D	DETAIL	N	NORTH	TOS	TOP OF STEEL
DI	DUCTILE IRON	NB	NORTHBOUND	TOW	TOP OF WALL
DIA	DIAMETER	NE	NORTHEAST	TYP	TYPICAL
DIAG	DIAGONAL	NE	NORTHEAST	TW	TOP OF WALL
DIM	DIMENSION	NIC	NOT IN CONTRACT	TYP.	TYPICAL
DIP	DUCTILE IRON PIPE	NO	NUMBER		
DWG	DRAWING	NTS	NOT TO SCALE		
DWL	DOWELS	NW	NORTHWEST	U	UNLESS NOTED OTHERWISE
				UNO	UNLESS NOTED OTHERWISE
E	EAST			V	VERTICAL
EA	EACH	O	ON CENTER	V	VERTICAL
EGL	ENERGY GRADE LINE	O.C.	ON CENTER	VCP	VITREOUS CLAY PIPE
EJ	EXPANSION JOINT	O.D.	OUTERDIAMETER	VERT	VERTICAL
EJW	EAST JORDAN IRON WORKS	OPNG	OPENING	VIF	VERIFY IN FIELD
EL	ELEVATION	OPP	OPPOSITE		
ELEC	ELECTRICAL				
ENG	ENGINEERED				
EX	EXISTING	P	POINT OF CURVATURE		
EXCAV	EXCAVATE(D)	PC	POINT OF CURVATURE	W	WEST
EXP	EXPANSION	PERM	PERMANENT	W/	WITH
		PL	PLATE	WD	WIDE
		P/L	PROPERTY LINE	WM	WATERMAIN
		POB	POINT OF BEGINNING	WWF	WELDED WIRE FABRIC
		POE	POINT OF ENDING		
		PR	PROPOSED		
		PSF	POUNDS PER SQUARE FOOT	Y	YEAR
		PSI	POUNDS PER SQUARE INCH	YR	YEAR

OWNER:
LIVONIA PUBLIC SCHOOLS
15125 Farmington Road
Livonia, MI 48154

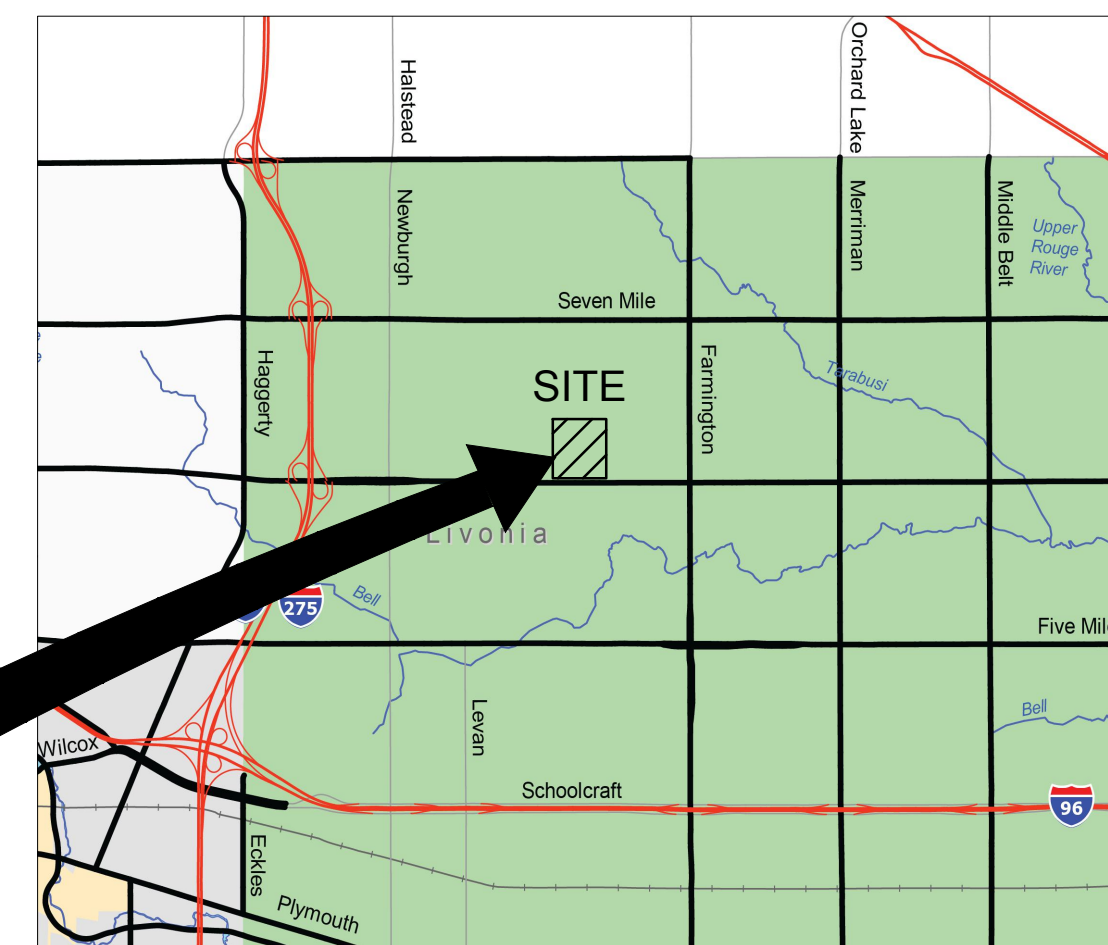
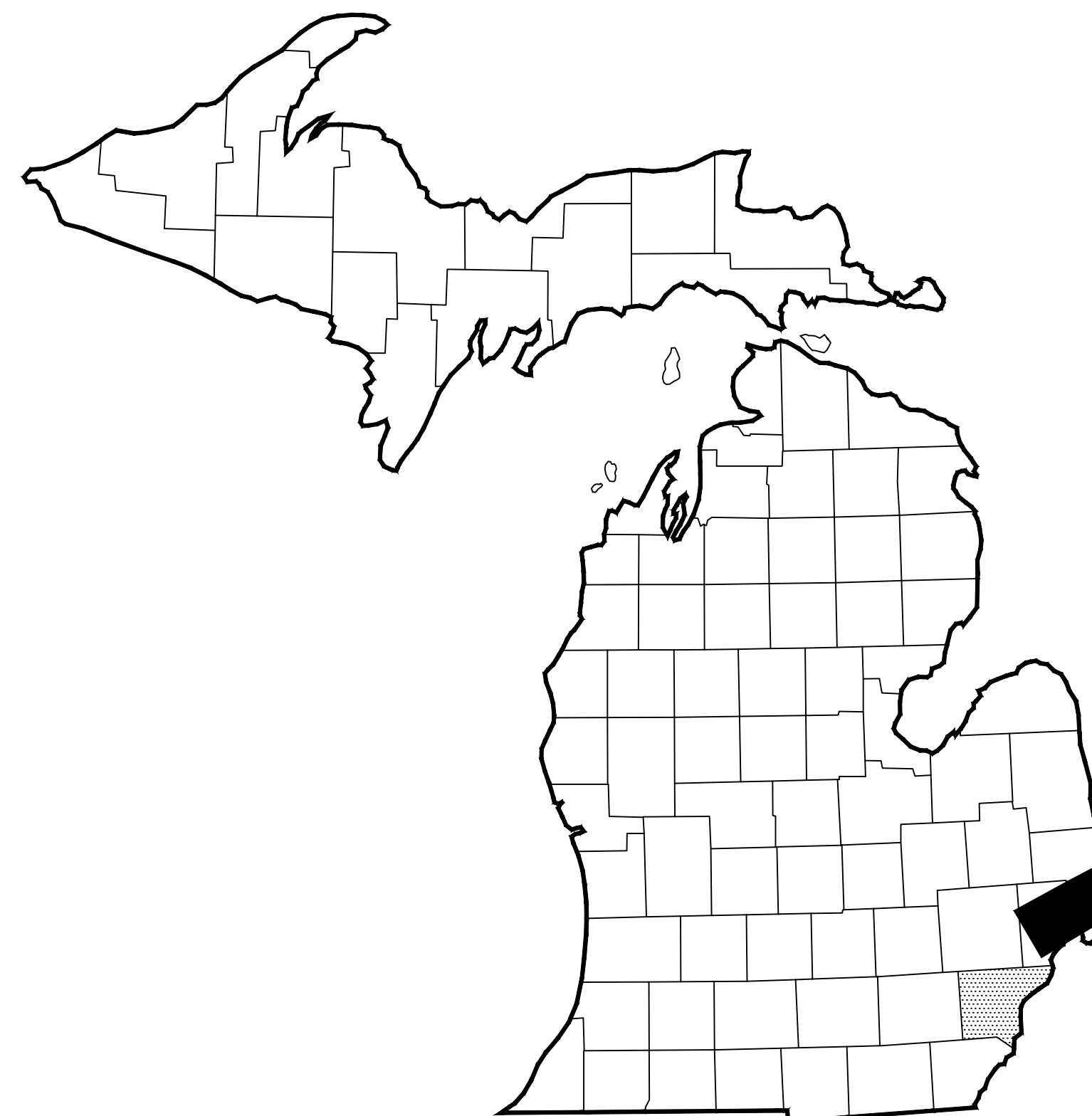
Contact: Harry Lau
Phone: 734-812-8597

ENGINEER:
NTH Consultants, LTD.
41780 Six Mile Road, Suite 200
Northville, Michigan 48168

Contact: Samantha Grant, P.E.
Phone: 248-662-2035

PROJECT DESCRIPTION:

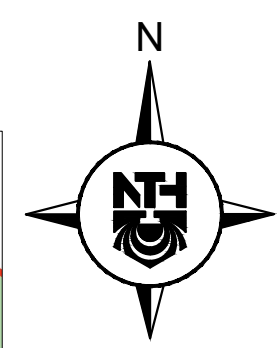
LIVONIA STEVENSON HIGH SCHOOL DRAIN OUTFALL EROSION REPAIR CONSISTS OF THE REPAIR OF AN ERODED OUTFALL USING RIP-RAP FILLED RENO MATTRESS, WITH ADDITIONAL DRAINAGE IMPROVEMENTS ACHIEVED THROUGH REGRADING OF THE EAST COURTYARD.



LOCATION MAP
NO SCALE

MICHIGAN
APPROX SCALE 1" = 50 MILES

Sheet List Table	
Sheet Number	Sheet Title
C-100	COVER SHEET
C-101	TOPOGRAPHIC SURVEY (1 OF 2)
C-102	TOPOGRAPHIC SURVEY (2 OF 2)
C-103	DEMOLITION AND SESC PLAN
C-104	PROPOSED SITE AND GRADING PLAN (1 of 2)
C-105	PROPOSED SITE AND GRADING PLAN (2 of 2)
C-500	NOTES AND DETAILS



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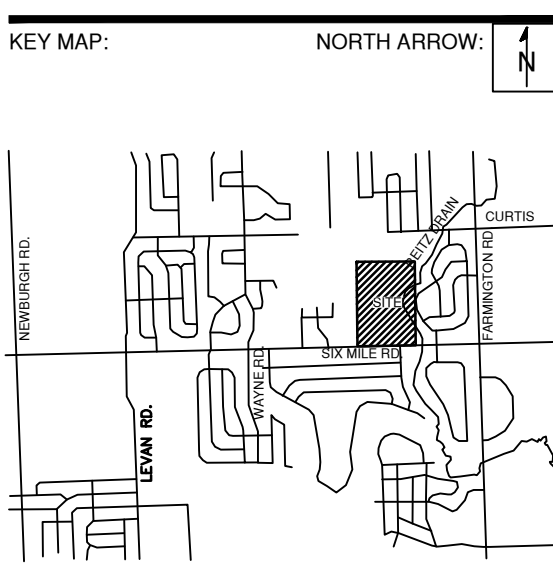
Northville, MI Lansing, MI
Detroit, MI Grand Rapids, MI
Livonia, MI (Laboratory)

3 WORKING DAYS
**BEFORE YOU DIG
CALL MISS DIG**
1-800-482-7171
For the location of public utility lines.
ALTERNATE NUMBER (810) 482-7171
COLOR CODES FOR UTILITY LOCATING

Yellow: Gas & Gas
Orange: Electric
Blue: Water
Green: Sewer
Red: Fire
Purple: Other

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG

SEAL/STAMP:



REVISION BLOCK	
REV	DATE/DESCRIPTION

SUBMITTAL LOG	
DATE	PACKAGE NAME

PROJECT NAME:
LIVONIA STEVENSON HIGH SCHOOL DRAIN OUTFALL EROSION REPAIR

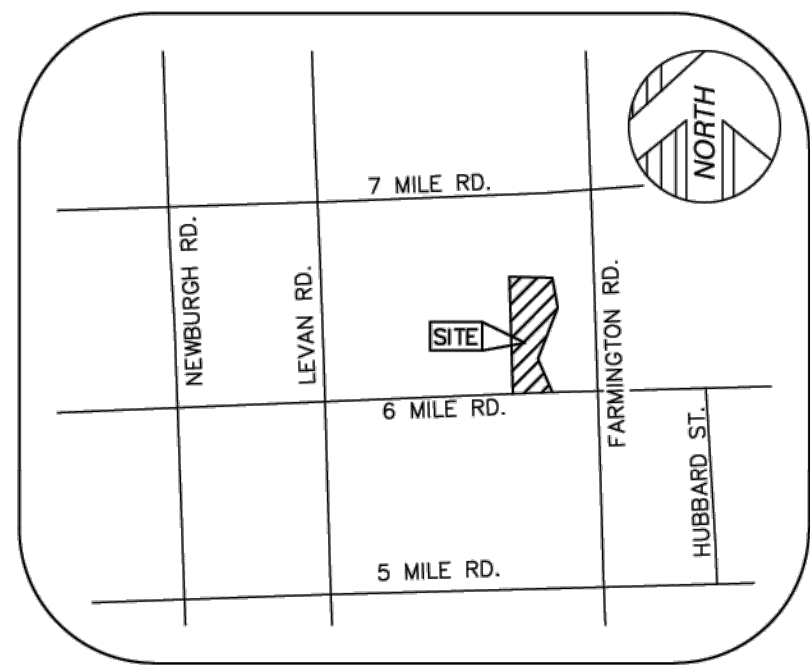
PROJECT LOCATION:
33500 SIX MILE ROAD,
LIVONIA, MICHIGAN 48152

DESIGNED BY:	NTH PROJECT NO.:
KBH	22000694
DRAWN BY:	SHEET SIZE:
KBH	ARCH D (24"x36")
CHECKED BY:	DATE:
SLG	8/17/2023
CAD FILE NAME:	
22000694 - COV	

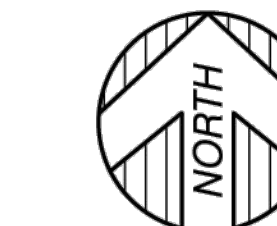
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COVER SHEET

SHEET NUMBER:
C-100

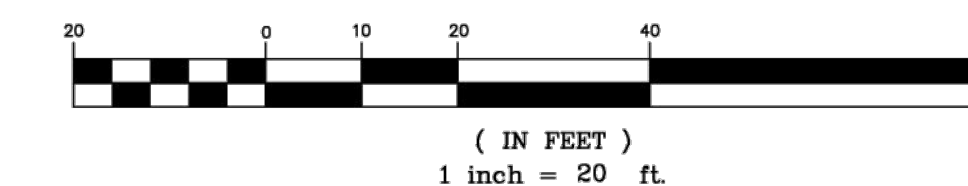
BID



VICINITY MAP
(NOT TO SCALE)



GRAPHIC SCALE



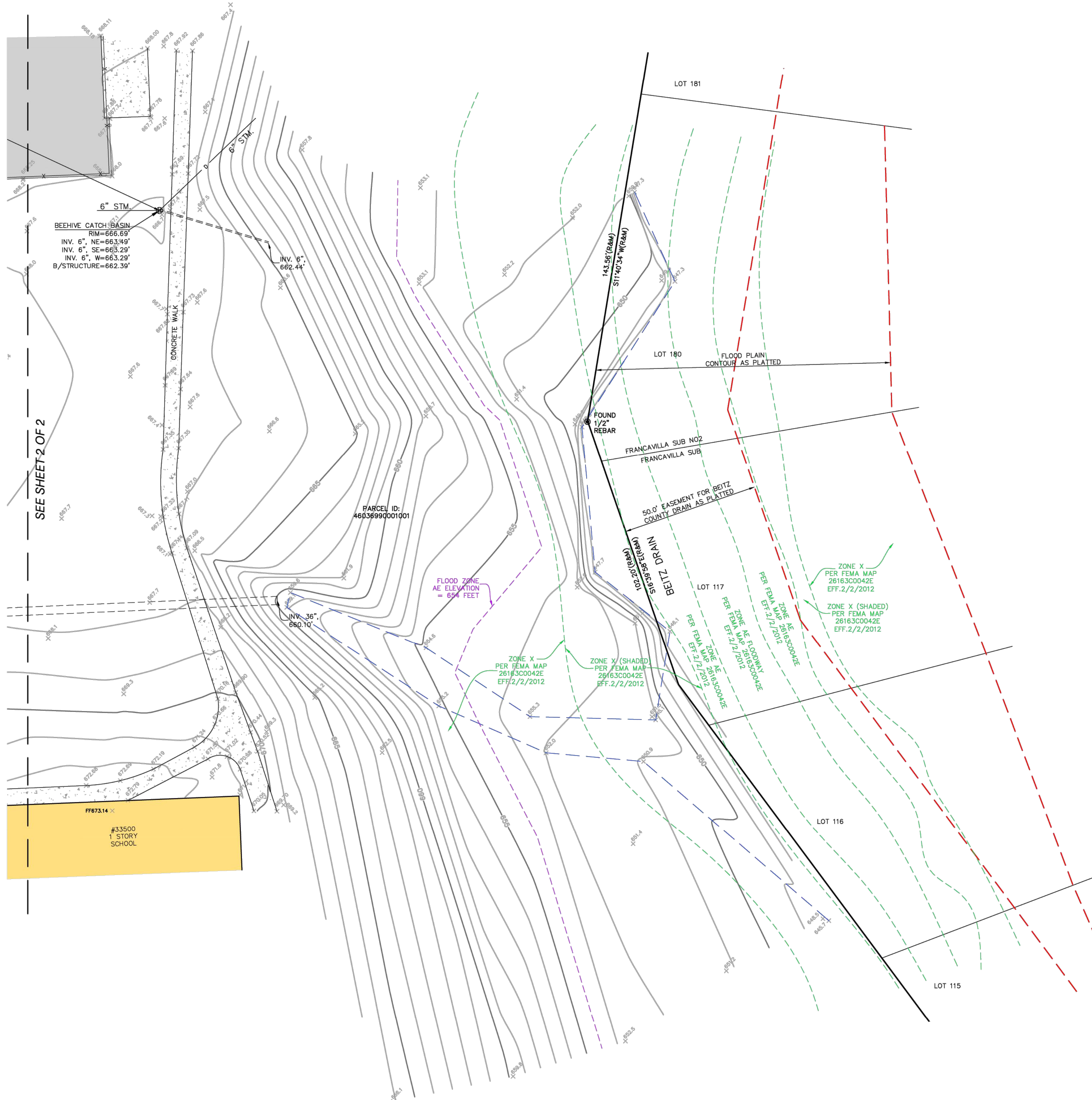
BENCHMARK
CHISELED "X" IN CONCRETE LIGHT POLE BASE.
ELEVATION = 683.39' (NAVD 88)

SURVEYOR'S NOTES

1. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES OTHER THAN THE STRUCTURE INVENTORY SHOWN HEREON.
2. A CURRENT TITLE POLICY HAS NOT BEEN FURNISHED AT TIME OF SURVEY. THEREFORE EASEMENTS AND/OR ENCUMBRANCES AFFECTING SUBJECT PARCEL MAY NOT BE SHOWN.

LEGEND

(R&M)	RECORD AND MEASURED DIMENSION
(R)	RECORD DIMENSION
(M)	MEASURED DIMENSION
X 0.00	GROUND ELEVATION
⊕	ROUND CATCH BASIN
⊙	LIGHTPOST/LAMP POST
---	PARCEL BOUNDARY LINE
---	PLATTED LOT LINE
---	EASEMENT (AS NOTED)
---	EDGE OF CONCRETE (CONC.)
---	STORM LINE
---	UNDERGROUND PIPE (AS NOTED)
---	EDGE OF WATER (AS NOTED)
---	FLOOD LINE PER ELEVATION
---	FLOOD LINE PER FEMA MAP
---	MINOR CONTOUR LINE
---	MAJOR CONTOUR LINE
---	CONCRETE



PROPERTY DESCRIPTION
THE LAND SITUATED IN THE CITY OF LIVONIA, COUNTY OF WAYNE, STATE OF MICHIGAN, IS DESCRIBED AS FOLLOWS:

PART OF THE SOUTHEAST 1/4 OF SECTION 9, TOWN 1 SOUTH, RANGE 9 EAST, BEGINNING NORTH 00 DEGREES 16 MINUTES 03 SECONDS EAST 60 FEET FROM THE SOUTH 1/4 CORNER OF SECTION 9; THENCE NORTH 00 DEGREES 16 MINUTES 03 SECONDS EAST 2523.35 FEET; THENCE SOUTH 89 DEGREES 13 MINUTES 35 SECONDS EAST 1312.37 FEET; THENCE SOUTH 00 DEGREES 00 MINUTES 25 SECONDS WEST 1124.50 FEET; THENCE SOUTH 72 DEGREES 21 MINUTES 05 SECONDS WEST 182.03 FEET; THENCE SOUTH 57 DEGREES 57 MINUTES 21 SECONDS WEST 140.98 FEET; THENCE SOUTH 25 DEGREES 24 MINUTES 09 SECONDS WEST 202.81 FEET; THENCE SOUTH 11 DEGREES 51 MINUTES 28 SECONDS WEST 143.56 FEET; THENCE SOUTH 16 DEGREES 29 MINUTES 04 SECONDS EAST 102.20 FEET; THENCE SOUTH 34 DEGREES 05 MINUTES 57 SECONDS EAST 349.61 FEET; THENCE SOUTH 27 DEGREES 45 MINUTES 31 SECONDS EAST 395.82 FEET; THENCE SOUTH 00 DEGREES 00 MINUTES 25 SECONDS WEST 190 FEET; THENCE NORTH 89 DEGREES 56 MINUTES 50 SECONDS WEST 1322.81 FEET TO THE POINT OF BEGINNING.

FLOOD NOTE

SUBJECT PARCEL LIES WITHIN:
SPECIAL FLOOD HAZARD AREA (ZONE AE): BASE FLOOD ELEVATIONS DETERMINED.
FLOODWAY AREAS IN ZONE AE: THE FLOODWAY IS THE CHANNEL OF A STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS.
OTHER FLOOD AREA (ZONE X): AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.
OTHER AREA (ZONE X): AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.
AS SHOWN ON FLOOD INSURANCE RATE MAP: MAP NUMBER 26163C0042E, DATED 2/2/2012, PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

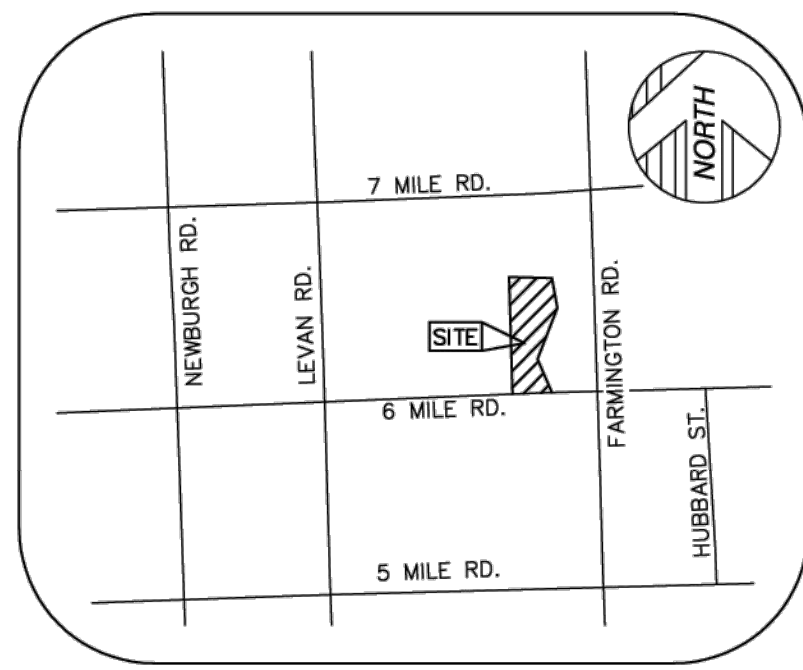
SURVEYOR'S CERTIFICATION

I HEREBY CERTIFY THAT I HAVE SURVEYED THE PROPERTY HEREIN DESCRIBED. THE ELEVATIONS SHOWN HEREON ARE BASED ON A FIELD SURVEY AND THE DRAWING HEREON DELINEATED IS A CORRECT REPRESENTATION OF THE SAME.

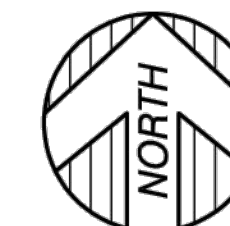
ANTHONY T. SYCKO, JR., P.S.
PROFESSIONAL SURVEYOR
MICHIGAN LICENSE NO. 47976
22556 GRATIOT AVE., EASTPOINTE, MI 48021
TSycko@kemttec-survey.com



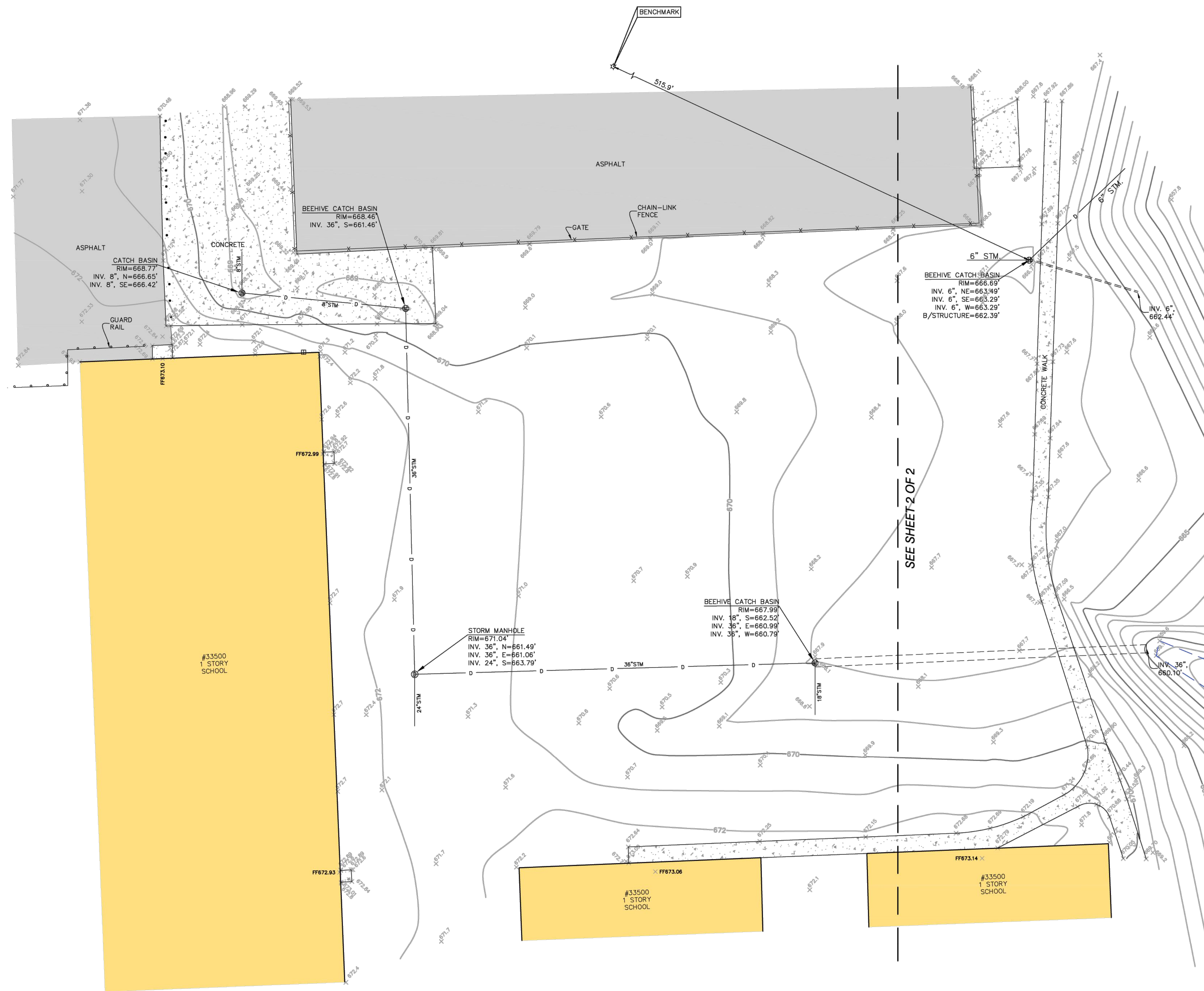
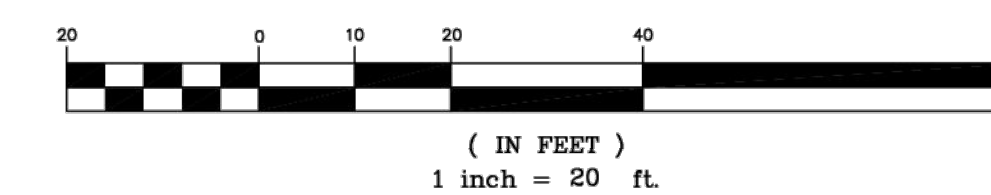
DATE	BY	REVISION	DESCRIPTION
03/07/23	JO		
03/09/23	ATS		
05/11/23	MRJ	2	ADDITIONAL TOPO
03/27/23	MRJ	1	ADDED FLOOD LINES PER FEMA MAP



VICINITY MAP
(NOT TO SCALE)



GRAPHIC SCALE



LEGEND

(R&M)	RECORD AND MEASURED DIMENSION
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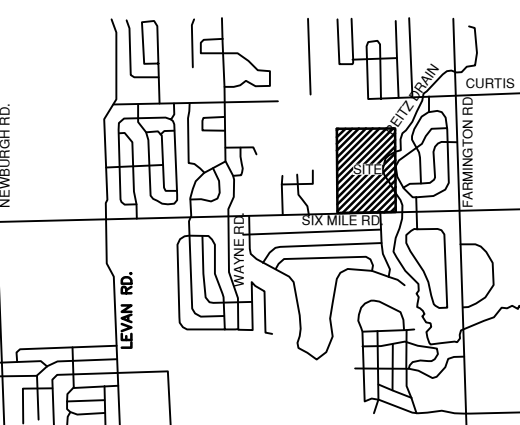
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Yellow	Oil & Gas	Blue	Water
Orange	Phone & Cable	Green	Storm Drain
Red	Electric	Brown	Sewer
Pink	Other	White	Surfing

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG

SEAL/STAMP:

KEY MAP: NORTH ARROW:



REVISION BLOCK

REV	DATE	DESCRIPTION

SUBMITTAL LOG

DATE	PACKAGE NAME

PROJECT NAME:

LIVONIA STEVENSON HIGH SCHOOL DRAIN OUTFALL EROSION REPAIR

PROJECT LOCATION:

33500 SIX MILE ROAD, LIVONIA, MICHIGAN 48152

DESIGNED BY:

KBH NTH PROJECT NO.: 22000694

DRAWN BY:

KBH SHEET SIZE: ARCH D (24"x36")

CHECKED BY:

SLG DATE: 8/17/2023

CAD FILE NAME:

22000694-EXCONDITIONS

SHEET TITLE:

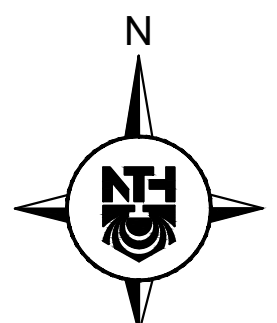
DEMOLITION AND SESC PLAN

SHEET NUMBER:

C-103

LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING BUILDING
- EXISTING CONTOURS
- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING LANDSCAPING/LAWN AREA
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING BOLLARD POST
- EXISTING LIGHT POLE
- EXISTING STORM STRUCTURE
- EXISTING STORM SEWER
- 100-YEAR FLOODPLAIN
- SILT FENCE
- INLET FILTER
- AREA TO BE CLEARED AND GRUBBED
- LANDSCAPED AREA TO BE REGRADED
- CONSTRUCTION TRAFFIC ROUTE

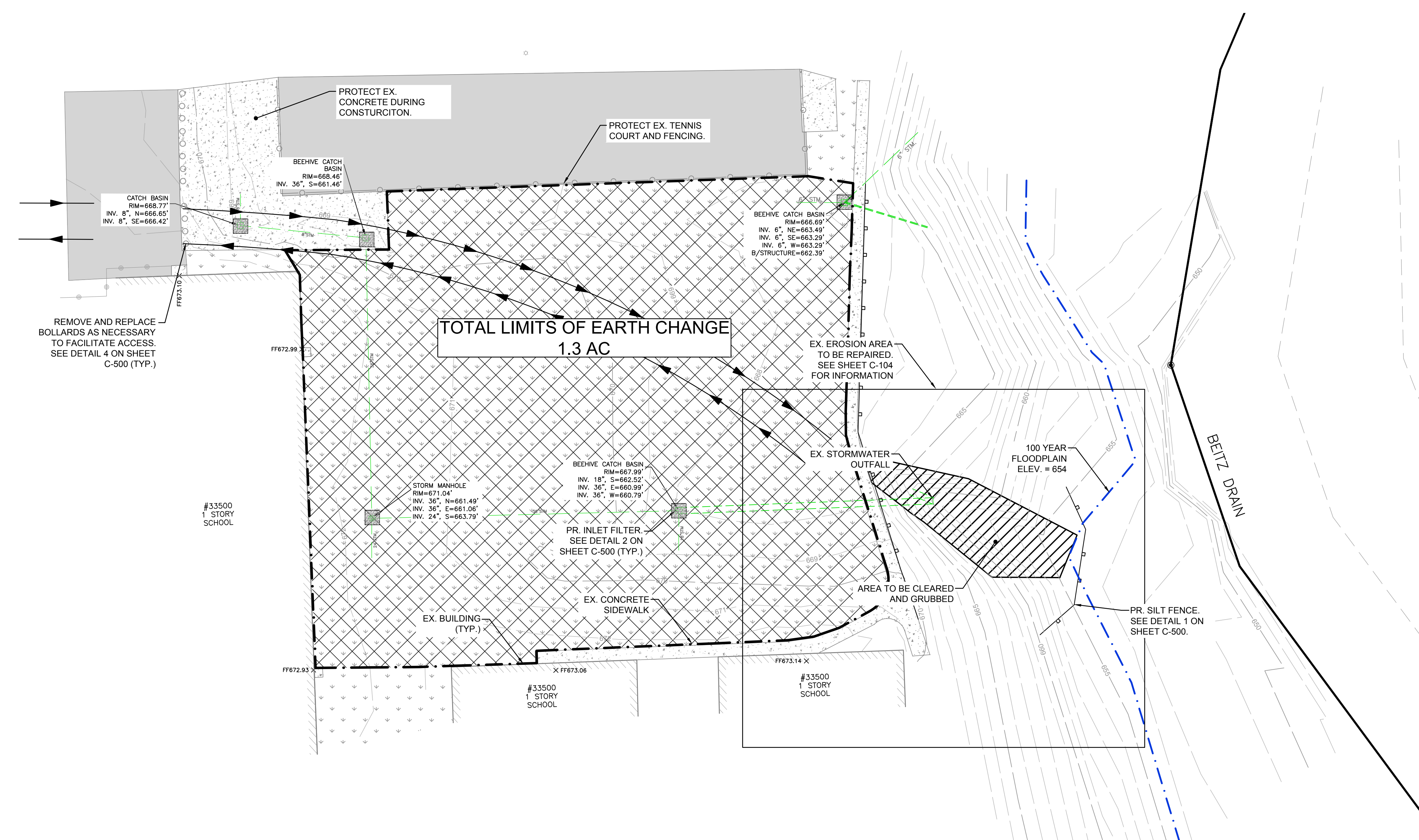


GENERAL NOTES

- TOPOGRAPHIC SURVEY WAS PROVIDED BY KEM-TEC PROFESSIONAL ENGINEERING SURVEYING & ENVIRONMENTAL SERVICES ON MAY 5, 2023. ALL EXISTING INFORMATION SHOWN IS FROM THIS SURVEY OF RECORD OR WAS SUPPLEMENTED BY INFORMATION FROM SITE VISITS AND/OR HISTORICAL DRAWINGS.
- ALL EXPOSED SOIL STOCKPILES SHALL BE ENCLOSED IN SILT FENCING UNTIL REMOVED FROM THE SITE OR PROVIDED WITH PERMANENT EROSION CONTROL MEASURES.
- THE CONTRACTOR SHALL PROVIDE A CERTIFIED STORMWATER OPERATOR (CSWO) TO INSPECT THE SESC MEASURES AND MAINTAIN INSPECTION LOGS AND REPORTS AS REQUIRED BY LAW. THE CSWO SHALL MAKE THE REPORTS AVAILABLE FOR REVIEW UPON REQUEST.

SOIL EROSION SEQUENCE OF CONSTRUCTION

- INSTALL SILT FENCE AND INLET FILTERS ON EXISTING CATCH BASINS. ESTIMATED DATE: 9/2023
- CONSTRUCT SITE FEATURES PER THE PLANS ESTIMATED DATE: 9/2023
- STABILIZE DISTURBED AREAS AS NOTED ON THE PLANS WITHIN 5 DAYS OF FINAL GRADING. ESTIMATED DATE: 9/2023
- RESTORE ALL OFF-SITE AREAS TO PRE-CONSTRUCTION CONDITION FOLLOWING SITE CONSTRUCTION.
- CLEAN PAVEMENT AND SEWERS AS NECESSARY (SCRAPE DAILY, SWEEP MIN. 1 PER WEEK). A CERTIFIED STORM WATER OPERATOR SHALL INSPECT ALL SESC MEASURES ON A WEEKLY BASIS AND AFTER SIGNIFICANT RAIN EVENTS TO ENSURE THE SESC MEASURES ARE ADEQUATE.
- REMOVE ALL TEMPORARY EROSION AND SEDIMENTATION CONTROLS FOLLOWING SITE CONSTRUCTION. FINAL STABILIZATION OF WORK, AND FINAL INSPECTION. ESTIMATED DATE: 10/2023



SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

CONTRACTOR SHALL ENSURE THAT SOIL EROSION AND SEDIMENTATION CONTROL MEASURES PROTECT AGAINST LOSS OF SOIL BY THE ACTION OF WATER, ICE, GRAVITY AND WIND.

SUMMARY OF BASIC PRINCIPLES

- KEEP DISTURBED AREA AS SMALL AS POSSIBLE.
- STABILIZE AND/OR PROTECT DISTURBED AREAS AS SOON AS POSSIBLE.
- KEEP STORM WATER RUNOFF VELOCITIES LOW.
- RETAIN SEDIMENT WITHIN IMMEDIATE CONSTRUCTION AREA.

THE PURPOSE OF THIS PLAN IS TO SPECIFY METHODS FOR TEMPORARY EROSION CONTROL DURING CONSTRUCTION. IT IS INTENDED THAT MEASURES CALLED FOR IN THE SPECIFICATIONS AND SHOWN ON THESE PLANS BE STRICTLY ADHERED TO. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ASSURE THAT CONSTRUCTION PROCEDURES UNDERTAKEN ARE IN CONFORMANCE WITH PART 91 OF ACT 451 OF 1994 THE STATE OF MICHIGAN'S SOIL EROSION AND SEDIMENTATION CONTROL ACT.

ALL SOIL EROSION AND SEDIMENTATION CONTROL DEVICES SHALL BE REGULARLY MAINTAINED BY THE CONTRACTOR THROUGHOUT THE DURATION OF THE PROJECT. COLLECTED SILT AND SEDIMENTATION SHALL BE REMOVED PERIODICALLY TO MAINTAIN THE EFFECTIVENESS OF THE SILT TRAPS OR SEDIMENTATION CONTROL DEVICES. WHERE REQUIRED, THE CONTRACTOR SHALL REMOVE AND REPLACE FILTER MATERIALS WHICH HAVE BECOME INEFFECTIVE DUE TO CONTAMINATION OR PHYSICAL DETERIORATION.

ALL TEMPORARY EROSION CONTROL FACILITIES SHALL BE REMOVED BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION UNLESS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE. CARE SHALL BE TAKEN DURING REMOVAL TO MINIMIZE SILTATION IN NEARBY DRAINAGE COURSES.

SURFACE DISRUPTION IN ADVANCE OF CONSTRUCTION INCLUDING CLEARING, GRADING OR SIGNIFICANT SOD REMOVAL SHALL BE PROCEEDED BY INSTALLATION OF SOIL EROSION AND SEDIMENTATION CONTROL DEVICES AS FOLLOWS, UNLESS PERMISSION IS OTHERWISE OBTAINED FROM THE GOVERNING AGENCY.

- WET WEATHER SEASON (MARCH, APRIL, MAY) - 5 DAYS PRIOR TO BEGINNING ANY EARTH CHANGE ACTIVITY.
- DRY WEATHER SEASON (JUNE, JULY, AUGUST, SEPTEMBER, OCTOBER, NOVEMBER) - 10 DAYS PRIOR TO BEGINNING ANY EARTH CHANGE ACTIVITY.
- COLD WEATHER SEASON (DECEMBER, JANUARY, FEBRUARY) - 15 DAYS PRIOR TO BEGINNING ANY EARTH CHANGE ACTIVITY.

TEMPORARY FACILITIES

THE CONTRACTOR SHALL CONSTRUCT THIS PROJECT IN COMPLIANCE WITH PART 91 OF ACT NO. 451 OF 1994, OF THE MICHIGAN COMPILED LAWS ENTITLED "SOIL EROSION AND SEDIMENTATION CONTROL" UNDER THE CONTROL OF THE LOCAL PERMIT AGENCY CHARGED WITH ADMINISTERING THE PROVISIONS OF THIS ACT. THE CONTRACTOR SHALL FOLLOW THE PROCEDURES DELINEATED BELOW AND IN THE PROJECT SPECIFICATIONS AND CONSTRUCT AND MAINTAIN THE FACILITIES SHOWN ON THE DRAWINGS TO CONTROL WATER AND WIND EROSION DURING CONSTRUCTION OF THIS PROJECT.

ALL DISTURBED SURFACE AREA (INCLUDING UTILITY TRENCHES) SHALL BE TEMPORARILY GRADED AND/OR DITCHED TO DIRECT ALL WATER RUNOFF FROM SUCH AREAS TO SEDIMENTATION CONTROL DEVICES WHICH WILL PREVENT WATER CARRYING ERODED SOIL FROM ENTERING A WATERCOURSE, SEWER, ADJACENT LANDS, AND ROADWAYS. SUCH SEDIMENTATION CONTROL DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO, PROTECTIVE DITCHES, SEDIMENT TRAPS, SEDIMENT FILTERS, DITCH TRAPS, PIPE BARRIERS, AND FILTERS AS DETAILED AND REQUIRED AND WHERE INDICATED ON THE DRAWINGS. AFTER THE PROJECT WORK HAS BEEN COMPLETED, INSPECTED, AND APPROVED, THE CONTRACTOR SHALL REMOVE ALL SEDIMENTATION CONTROL DEVICES, MATERIAL, AND THEIR COLLECTED SILT AND DEBRIS AND RESTORE THE AREA IN ACCORDANCE WITH THE DRAWINGS.

TEMPORARY AGGREGATE SURFACING SHALL BE PLACED IN ROADWAY AREAS IMMEDIATELY AFTER THE BACKFILLING OPERATION HAS BEEN COMPLETED. POSITIVE DUST CONTROL MEASURES SHALL BE TAKEN AT ALL TIMES.

PERMANENT STABILIZATION SHALL BE COMPLETED WITHIN 5 DAYS OF FINAL EARTH CHANGE. FINAL CLEANUP AND RESTORATION WILL CONSIST OF FINAL GRADING, TOPSOILING, SEEDING AND MULCHING AND/OR SODDING OF ALL DISTURBED AREAS OF THE PROJECT.

IF SEASONAL CONDITIONS PREVENT FINAL CLEANING AND RESTORATION, THE CONTRACTOR SHALL PROCEED WITH TEMPORARY STABILIZATION OF THE DISTURBED AREA. TEMPORARY STABILIZATION SHALL CONSIST OF ROUGH GRADING THE DISTURBED AREA IN ACCORDANCE WITH THESE SPECIFICATIONS AND INSTALLING THE SPECIFIED SOIL EROSION AND SEDIMENTATION CONTROL DEVICES. TEMPORARY STABILIZATION MATERIALS SHALL BE REMOVED AND DISPOSED OF AND FINAL CLEANUP AND RESTORATION SHALL BE COMPLETED NOT LATER THAN 5 DAYS AFTER SEASONAL CONDITIONS ALLOW PERFORMANCE OF THE REQUIRED WORK.

MAINTENANCE NOTES

THE CONTRACTOR SHALL INSPECT SOIL EROSION AND SEDIMENTATION CONTROL DEVICES WEEKLY AND WITHIN 24 HOURS OF A SIGNIFICANT RAIN EVENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE SOIL EROSION AND SEDIMENTATION CONTROL DEVICES.

MAINTENANCE INCLUDES ALL WORK NECESSARY FOR PROPER OPERATION OF THE DEVICES. DEVICES WHICH CAN NOT BE REPAIRED SHALL BE REPLACED. MAINTENANCE OF THE DEVICES SHALL BE PERFORMED WITHIN 24 HOURS OF INSPECTION.

SEDIMENT SHALL BE REMOVED AS NECESSARY TO MAINTAIN THE EFFECTIVENESS OF SOIL EROSION AND SEDIMENTATION CONTROL DEVICES.

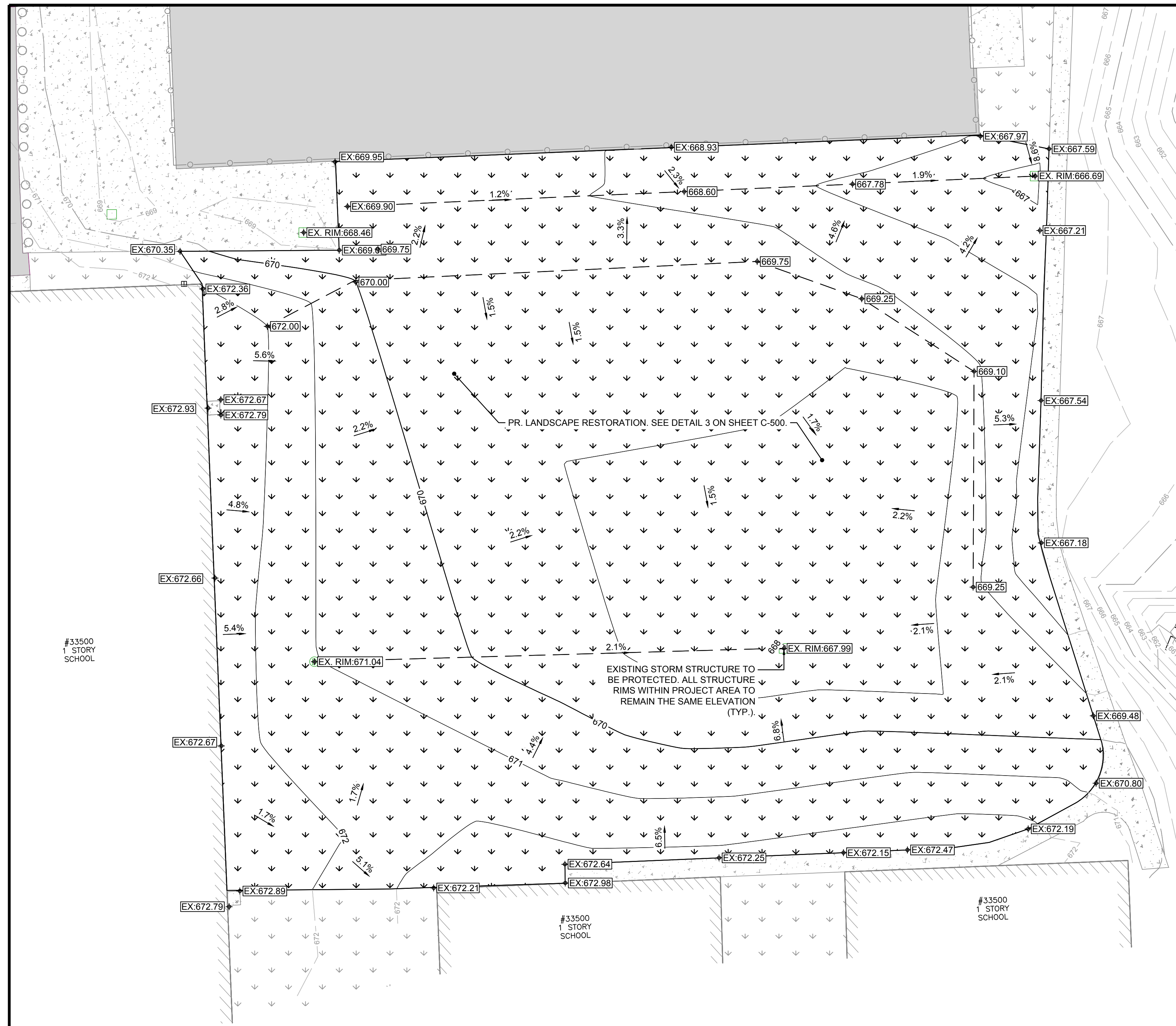
SEDIMENT DEPOSITED ALONG SILT FENCE SHALL BE REMOVED WHEN IT REACHES 1/3 TO 1/2 THE HEIGHT OF THE FENCE AND PRIOR TO REMOVAL AT THE END OF THE PROJECT OR TIME OF FINAL REMOVAL.

TURF ESTABLISHMENT MEASURES SHALL BE MAINTAINED AS WOULD ANY OTHER DEVICES PRIOR TO ESTABLISHMENT OF PERMANENT TURF.

ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THIS SITE SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.

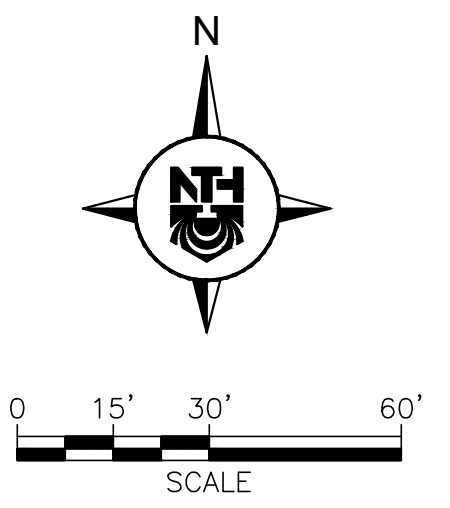
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LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING BUILDING
- EXISTING CONTOURS
- EXISTING ASPHALT PAVEMENT
- EXISTING CONCRETE PAVEMENT
- EXISTING LANDSCAPING/LAWN AREA
- EXISTING FENCE
- EXISTING GUARDRAIL
- EXISTING BOLLARD POST
- EXISTING LIGHT POLE
- EXISTING STORM STRUCTURE
- EXISTING STORM SEWER
- PROPOSED CONTOURS
- PROPOSED SLOPE ARROW
- PROPOSED SPOT ELEVATION
- EXISTING SPOT ELEVATION
- EXISTING RIM SPOT ELEVATION
- PROPOSED LANDSCAPING/LAWN AREA
- PROPOSED RIDGE LINE



GENERAL NOTES

1. TOPOGRAPHIC SURVEY WAS PROVIDED BY KEM-TEC PROFESSIONAL ENGINEERING SURVEYING & ENVIRONMENTAL SERVICES ON MAY 5, 2023. ALL EXISTING INFORMATION SHOWN IS FROM THIS SURVEY OF RECORD OR WAS SUPPLEMENTED BY INFORMATION FROM SITE VISITS AND/OR HISTORICAL DRAWINGS.
2. ALL EXPOSED SOIL STOCKPILES SHALL BE ENCLOSED IN SILT FENCING UNTIL REMOVED FROM THE SITE OR PROVIDED WITH PERMANENT EROSION CONTROL MEASURES.
3. LOCATION OF UTILITIES OR OTHER STRUCTURES SHOWN ON PLANS ARE TAKEN FROM SURVEY OF RECORD. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY OMISSIONS OR VARIATIONS. THE CONTRACTOR SHALL CONTACT MISS DIG A MINIMUM OF THREE WORKING DAYS PRIOR TO BEGINNING CONSTRUCTION IN THE AREA OF WORK AND SHALL VERIFY ALL UNDERGROUND UTILITIES ON-SITE, PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL PROVIDE NECESSARY TRAFFIC CONTROL AND SIGNAGE TO MAINTAIN ACCESS TO AND WITHIN PROPERTY THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH LOCAL, COUNTY AND STATE REQUIREMENTS OR AS DIRECTED BY ENGINEER. CONTRACTOR SHALL PROVIDE APPROPRIATE BARRICADES AROUND WORK AREAS FOR PEDESTRIAN AND VEHICULAR SAFETY.
5. THE CONTRACTOR SHALL AVOID DAMAGE TO THE EXISTING PAVEMENTS DESIGNATED TO REMAIN. ANY PAVEMENT DAMAGE THAT OCCURS AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND MAINTAINING ALL NECESSARY CONSTRUCTION STAKING AND GRADE AND ALIGNMENT CONTROLS.
7. ALL EXISTING SITE FEATURES SHALL BE PROTECTED UNLESS OTHERWISE INDICATED ON PLANS.
8. ALL AREAS OF EARTH DISTURBANCE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE SEEDED AND MULCHED WITH 3" TOPSOIL AND MDOT CLASS A SEED WHERE FINAL EARTH STABILIZATION MEASURES ARE NOT SPECIFICALLY DESIGNATED.

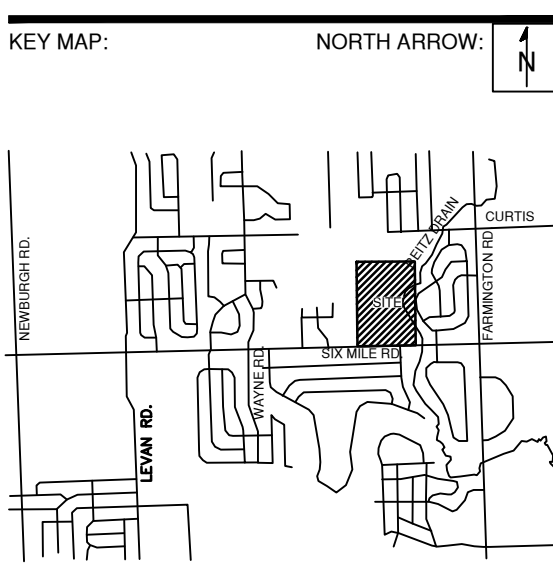
Northville, MI Lansing, MI
 Detroit, MI Grand Rapids, MI
 Livonia, MI (Laboratory)

BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7171
 For the location of public utility lines.
 ALTERNATE NUMBER (810) 482-7171
 COLOR CODES FOR UTILITY LOCATING

Yellow	Oil & Gas	Blue	Water
Orange	Fire	Green	Storm Drain
Red	Electric	Brown	Sanitary Sewer
Pink	Other	Grey	Other

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG

SEAL/STAMP:



REVISION BLOCK

REV	DATE	DESCRIPTION

SUBMITTAL LOG

DATE	PACKAGE NAME

PROJECT NAME:
LIVONIA STEVENSON HIGH SCHOOL DRAIN OUTFALL EROSION REPAIR

PROJECT LOCATION:
33500 SIX MILE ROAD, LIVONIA, MICHIGAN 48152

DESIGNED BY: KBH	NTH PROJECT NO.: 22000694
DRAWN BY: KBH	SHEET SIZE: ARCH D (24"x36")
CHECKED BY: SLG	DATE: 8/17/2023
CAD FILE NAME: 22000694-PROPOSED	

SHEET TITLE:
PROPOSED SITE AND GRADING PLAN (1 OF 2)

SHEET NUMBER:
C-104

BID

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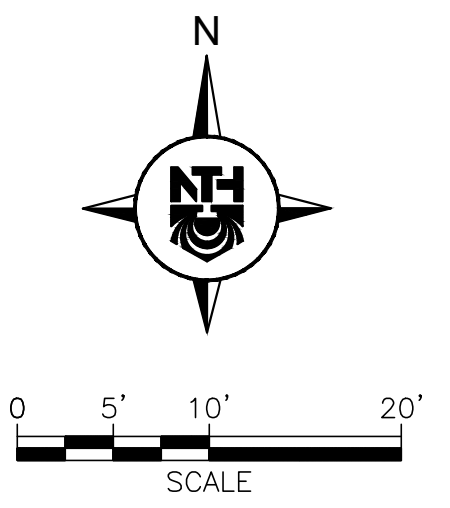
Infrastructure Engineering
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Facilities Engineering
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Detroit, MI Grand Rapids, MI
Livonia, MI (Laboratory)

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
For the location of public utility lines.
ALTERNATE NUMBER (810) 482-5000
COLOR CODES FOR UTILITY LOCATING

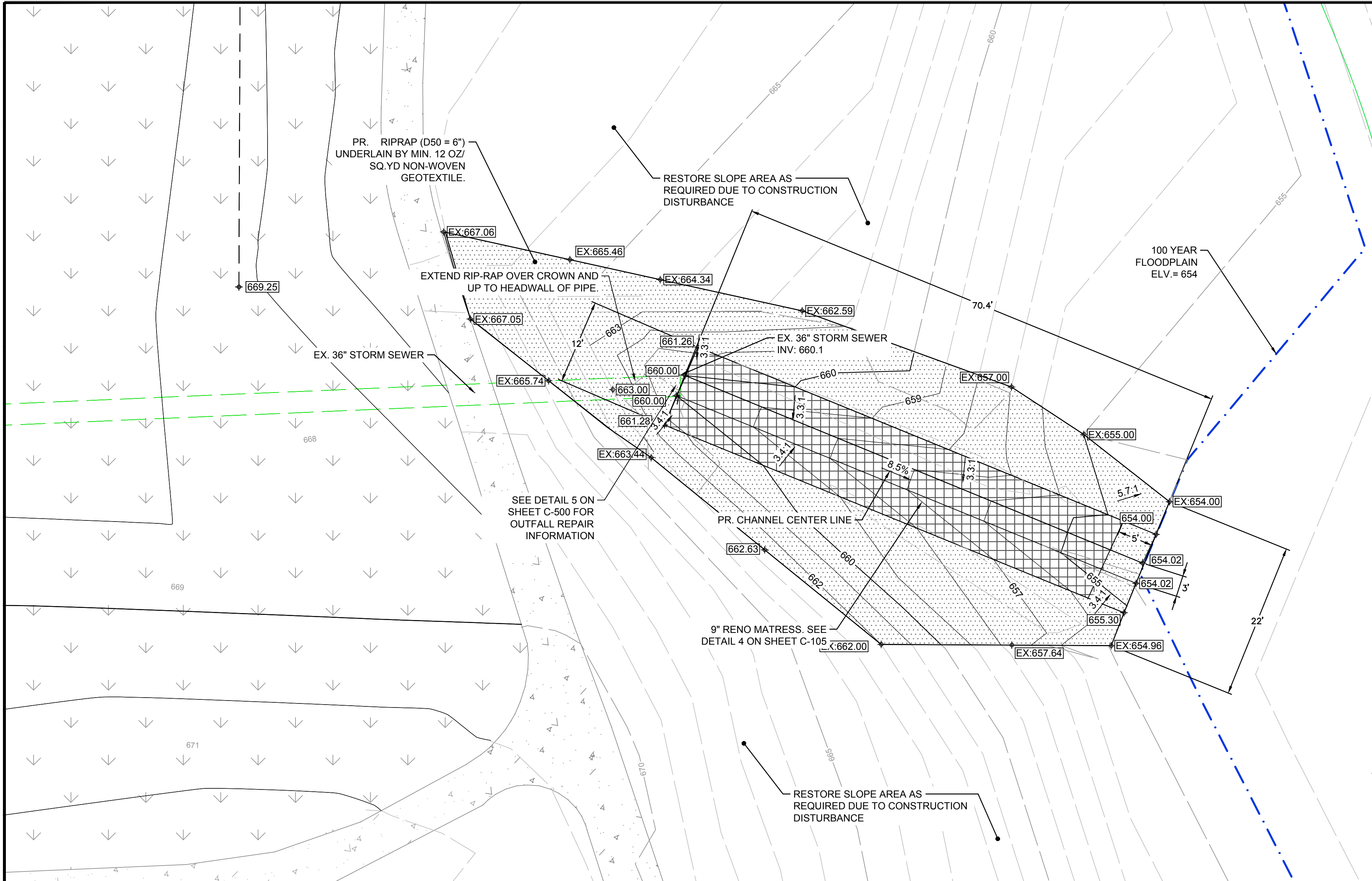
Yellow	Oil & Gas	Blue	Water
Orange	Phone & Cable	Green	Storm Drain
Red	Electric	Brown	Sanitary Sewer
Pink	Fire	Grey	Surfing

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG



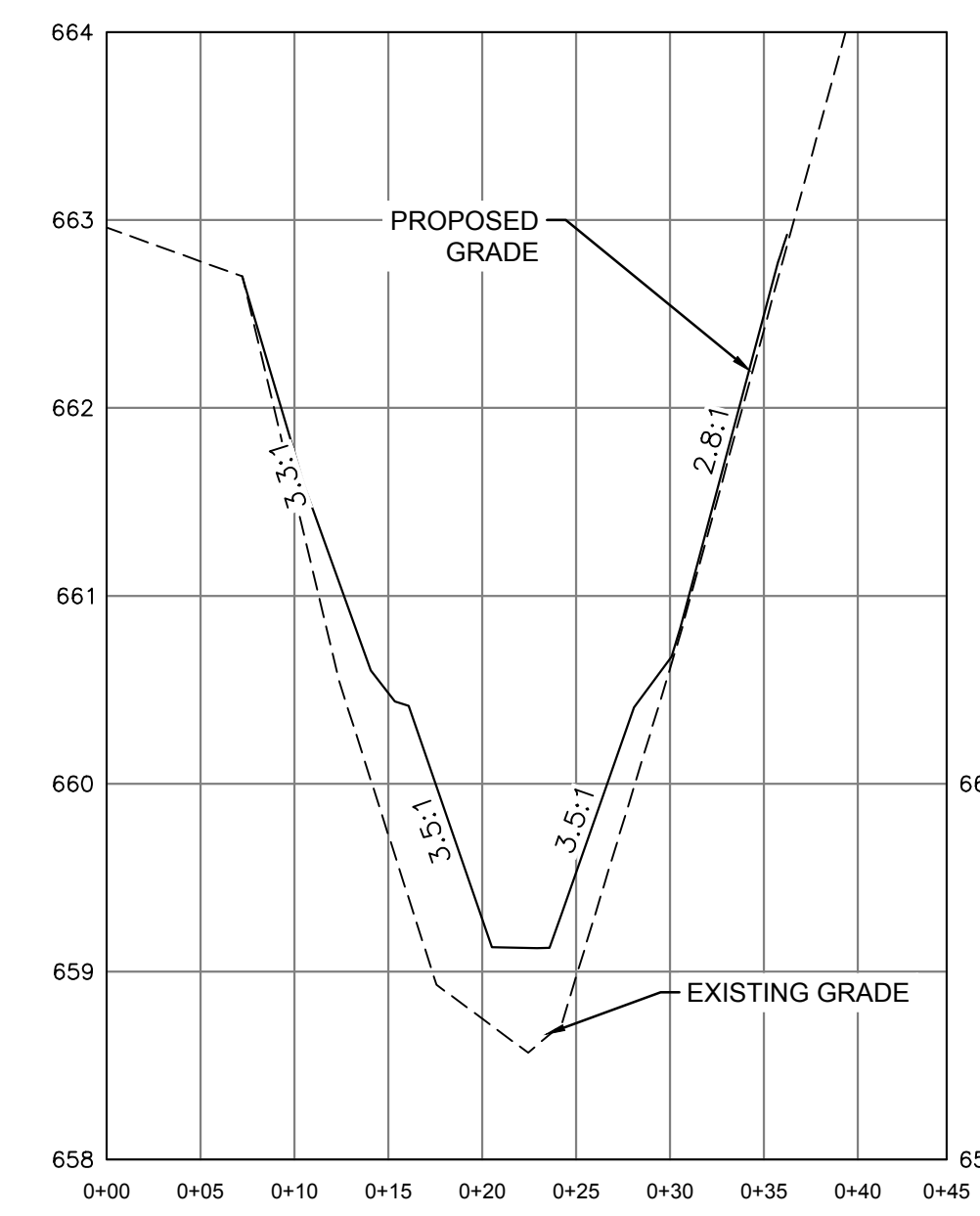
LEGEND

- EXISTING PROPERTY BOUNDARY
- EXISTING FLOODPLANE
- EXISTING CONTOURS
- EXISTING CONCRETE PAVEMENT
- EXISTING LANDSCAPING/LAWN AREA
- EXISTING STORM SEWER
- PROPOSED SLOPE ARROW
- PROPOSED SPOT ELEVATION
- PROPOSED DOWNSLOPE SPILLWAY
- PROPOSED RIP-RAP

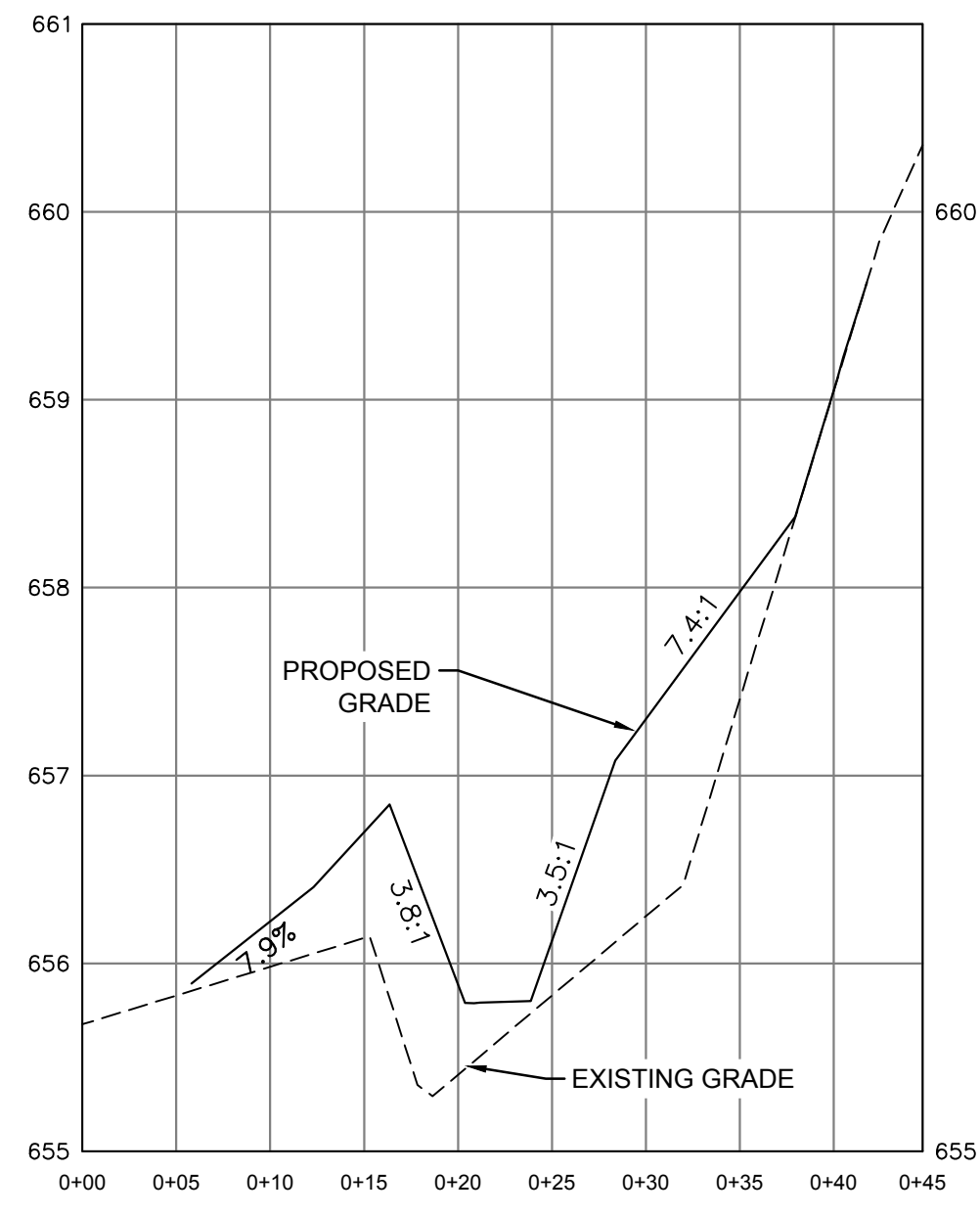


GENERAL NOTES

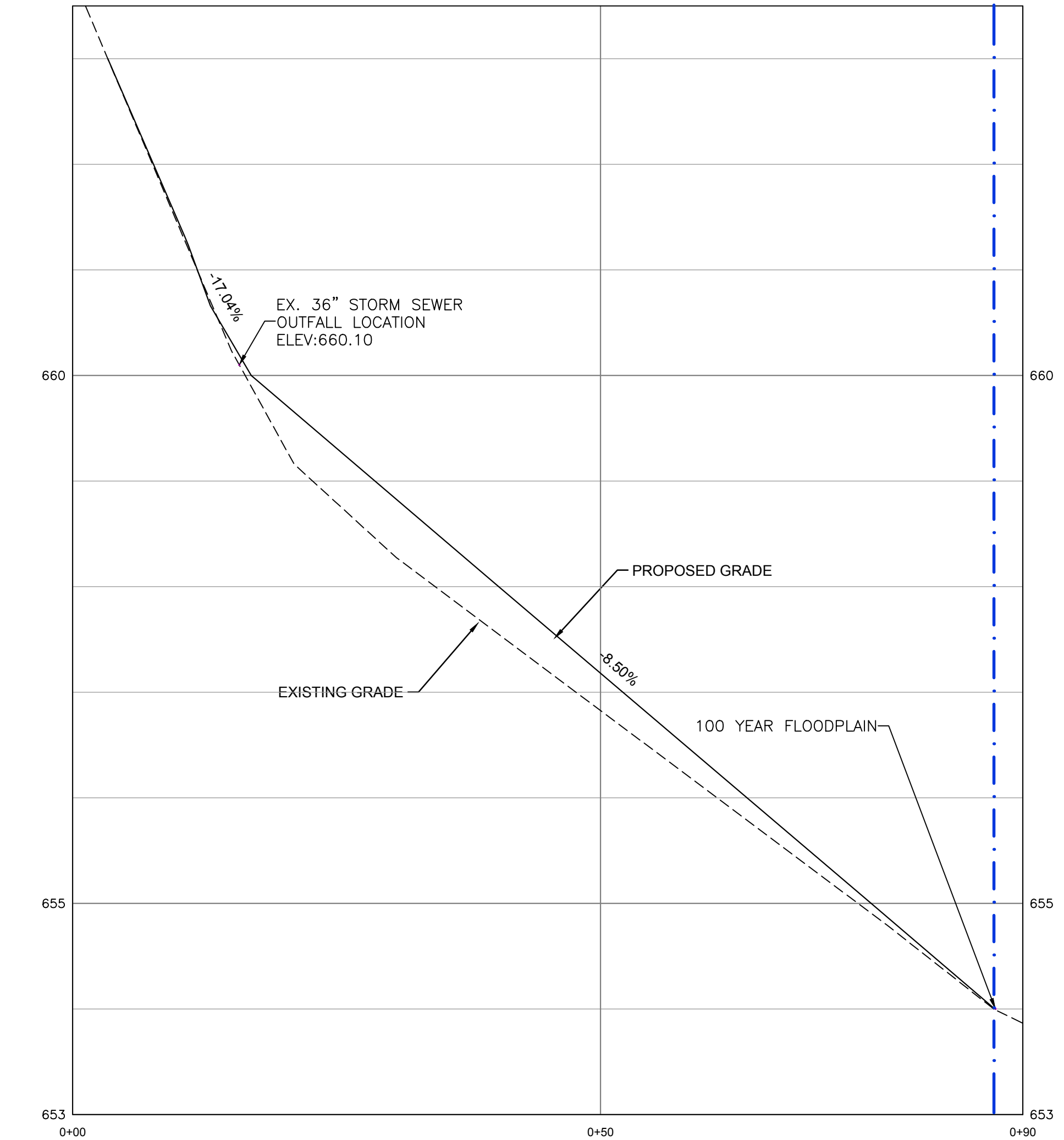
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CHANNEL SECTION - TOP
HORIZ SCALE: 1" = 10'
VERT SCALE: 1" = 1'



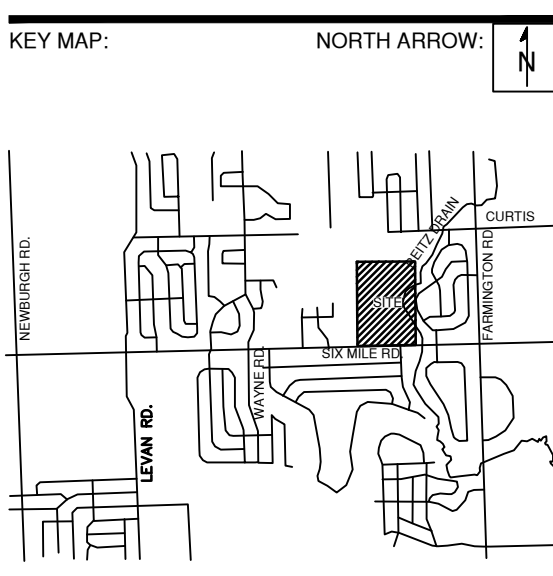
CHANNEL SECTION - MID
HORIZ SCALE: 1" = 10'
VERT SCALE: 1" = 1'



CHANNEL CL PROFILE
HORIZ SCALE: 1" = 10'
VERT SCALE: 1" = 1'

NOTE:
SEE DETAILS 5 AND 6 ON
SHEET C-500 FOR FULL
CHANNEL DIMENSIONS

SEAL/STAMP:



REVISION BLOCK

REV	DATE	DESCRIPTION

SUBMITTAL LOG

DATE	PACKAGE NAME

PROJECT NAME:
LIVONIA STEVENSON HIGH
SCHOOL DRAIN OUTFALL
EROSION REPAIR

PROJECT LOCATION:
33500 SIX MILE ROAD,
LIVONIA, MICHIGAN 48152

DESIGNED BY: KBH	NTH PROJECT NO.: 22000694
DRAWN BY: KBH	SHEET SIZE: ARCH D (24"x36")
CHECKED BY: SLG	DATE: 8/17/2023
CAD FILE NAME: 22000694-PROPOSED	

SHEET TITLE:
PROPOSED SITE AND
GRADING PLAN (2 OF 2)

SHEET NUMBER:
C-105

BID

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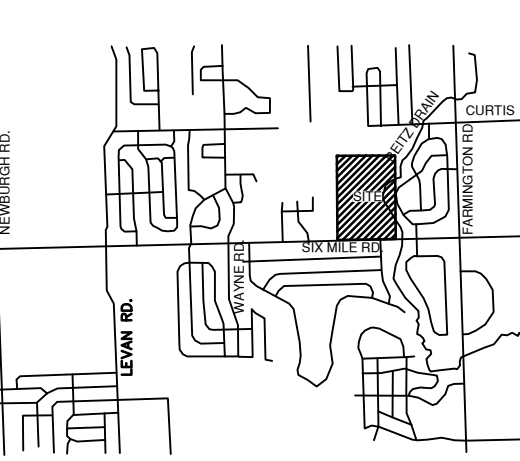
3 WORKING DAYS
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For the location of public utility lines.
ALTERNATE NUMBER (810) MISS-DIG
COLOR CODES FOR UTILITY LOCATING

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Orange: Electric
Blue: Water
Green: Sewer
Red: Storm Drain
Purple: Other

IF YOU ARE GOING TO WORK NEAR OVERHEAD WIRES - CALL MISS DIG

SEAL/STAMP:

KEY MAP: NORTH ARROW: N



REVISION BLOCK	
REV	DATE/DESCRIPTION

SUBMITTAL LOG	
DATE	PACKAGE NAME

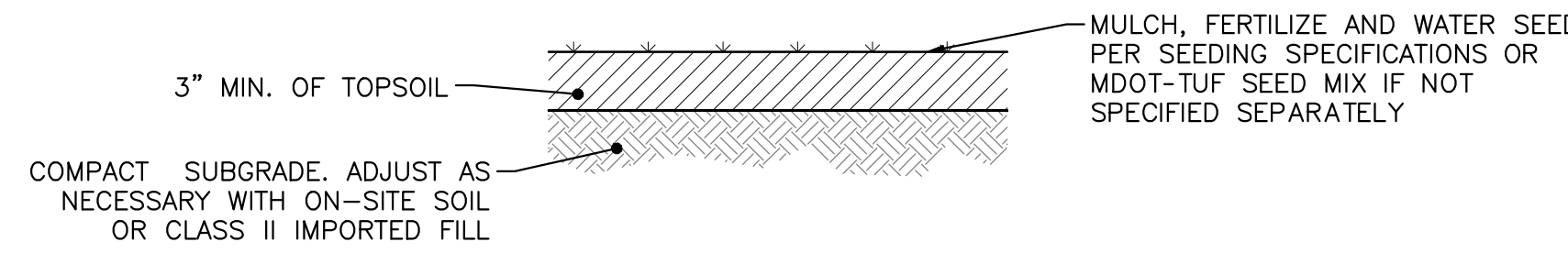
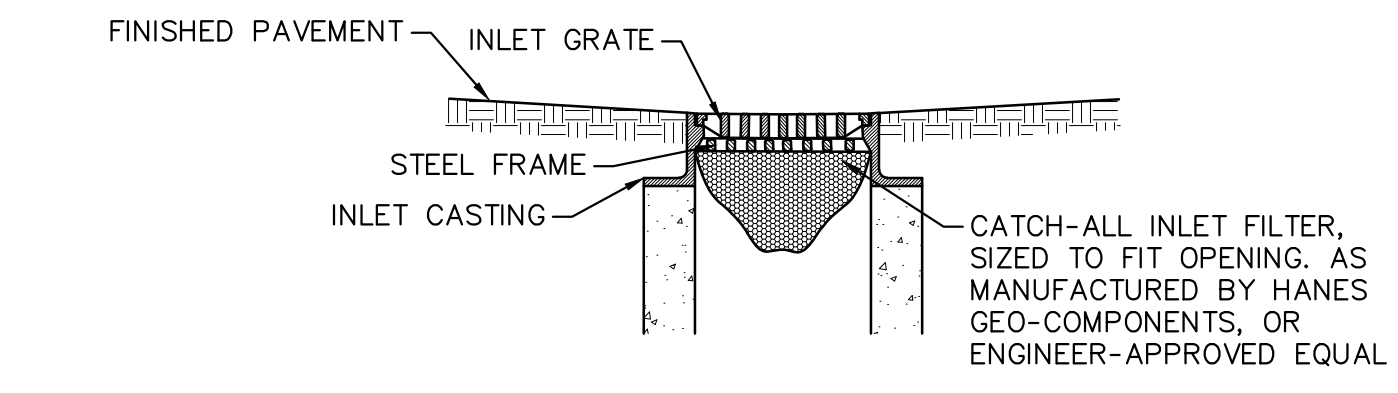
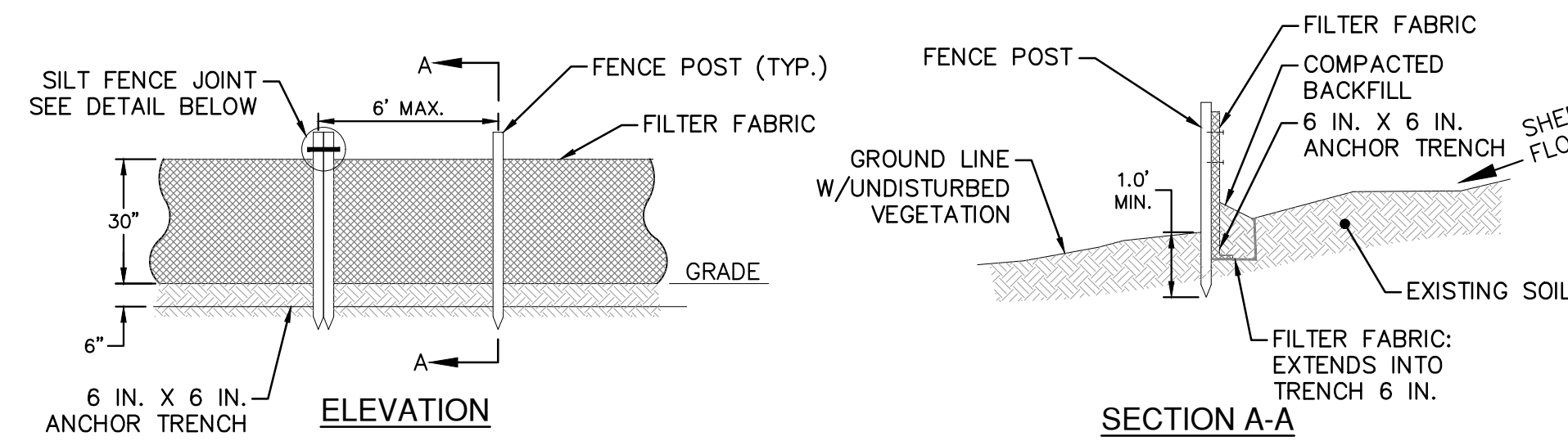
PROJECT NAME:
LIVONIA STEVENSON HIGH SCHOOL DRAIN OUTFALL EROSION REPAIR

PROJECT LOCATION:
33500 SIX MILE ROAD, LIVONIA, MICHIGAN 48152

DESIGNED BY: KBH	NTH PROJECT NO.: 22000694
DRAWN BY: KBH	SHEET SIZE: ARCH D (24"x36")
CHECKED BY: SLG	DATE: 8/17/2023
CAD FILE NAME: 22000694-DET	

SHEET TITLE:
NOTES AND DETAILS

SHEET NUMBER:
C-500

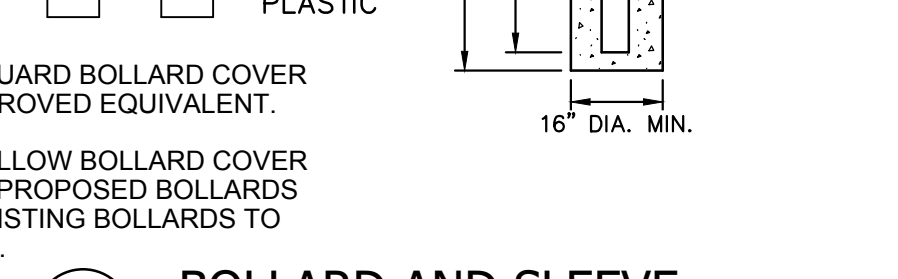
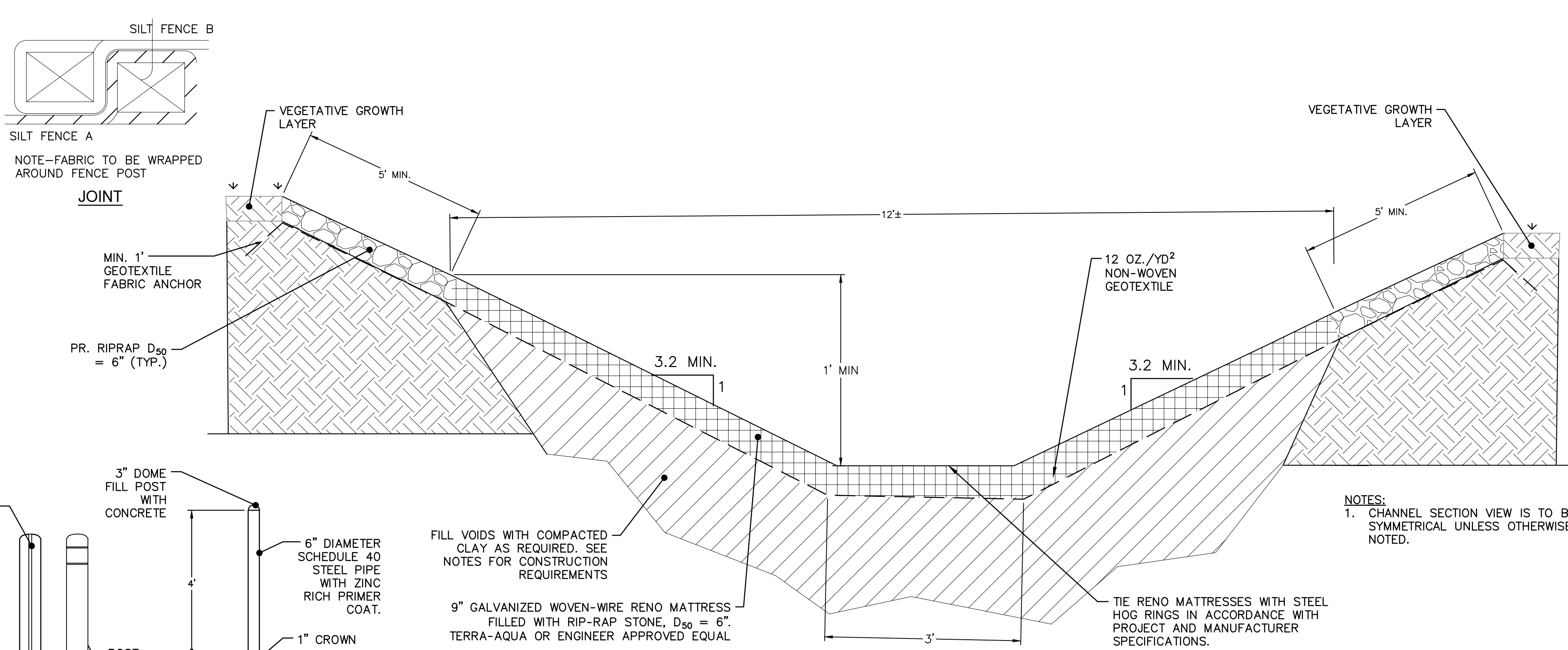


COMPACTED CLAY NOTES

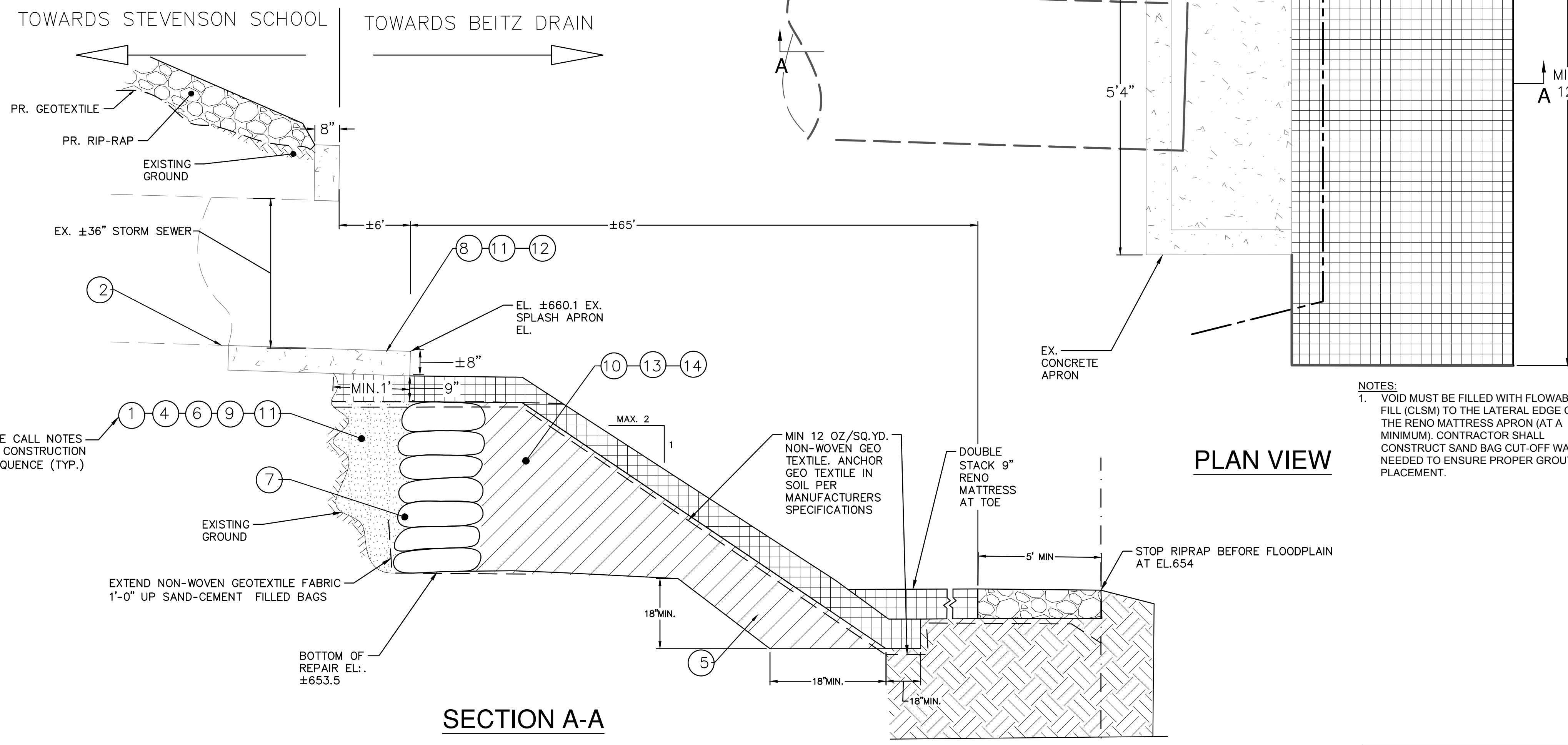
- CLAY SOIL SHALL HAVE A CLASSIFICATION OF CH, CL, ML, OR COMBINATION AS DETERMINED BY THE UNIFIED SOIL CLASSIFICATION SYSTEM, ASTM D2487-92
- PROOF-ROLL THE SUBGRADE SURFACE PRIOR TO PLACING THE FIRST LIFT OF THE COMPACTED SOIL.
- COMPACT EACH LIFT THOROUGHLY AND UNIFORMLY TO AT LEAST 90% OF THE MAXIMUM DRY DENSITY, A DETERMINED BY THE MODIFIED PROCTOR TEST, ASTM D1557-91.
- PLACE AND COMPACT EACH LIFT WITH A GENERAL THICKNESS OF 6 INCHES AFTER COMPACTION OR THE THICKNESS OF THE COMPACTOR TEETH.
- INTEGRATE EACH LIFT INTO THE PREVIOUS LIFT BY TECHNIQUES SUCH AS SCARIFYING EACH LIFT AND BY USING COMPACTION EQUIPMENT THAT IS CAPABLE OF PENETRATING THE THICKNESS OF EACH COMPACTED LIFT. THE MAXIMUM CLOD SIZE IS 4 INCHES.
- PROTECT THE COMPACTED SOIL FROM DETRIMENTAL CLIMATIC EFFECTS DURING CONSTRUCTION BY DOING ALL OF THE FOLLOWING:
 - REMOVE ALL ICE, SNOW AND FROZEN SOIL DURING WINTER CONSTRUCTION BEFORE PLACING A LIFT AND NOT USING FROZEN SOIL IN ANY PART OF THE COMPACTED SOIL.
 - RE-COMPACT ANY SOIL LIFT THAT HAS ITS INTEGRITY SO ADVERSELY AFFECTED BY WEATHER THAT THE SOIL LIFT IS NO LONGER IN COMPLIANCE WITH THE REQUIREMENTS OF THESE PLANS.
 - ENSURE THAT THE COMPACTED SOIL IS NOT SUBJECT TO DESICCATION CRACKING BY SPRINKLING THE SOIL WITH WATER OR COVERING THE SOIL. ANY SOIL THAT HAS EXPERIENCED EXCESSIVE DESICCATION CRACKING MUST BE REMOVED.
 - REMOVE OBSERVED DEBRIS, ROOTS, AND ANY ANGULAR OR SHARP ROCKS THAT MAY DAMAGE THE GEOMEMBRANE.

CONSTRUCTION SEQUENCE:

- PROVIDE TEMPORARY SHORING AS REQUIRED TO SUPPORT THE EXISTING CONCRETE HEADWALL/SPLASH APRON STRUCTURE PRIOR TO START OF HEADWALL OUTFALL REPAIR CONSTRUCTION ACTIVITIES. SHORING SHALL BE DESIGNED AND INSTALLED TO REMAIN IN PLACE AFTER PLACING OF FLOWABLE FILL.
- FLOW OF WATER FROM EXISTING 36-INCH STORM SEWER OUTFALL CANNOT BE STOPPED OR INTERRUPTED DURING CONSTRUCTION ACTIVITIES. MINIMAL DISCHARGE OCCURS CONTINUOUSLY INDEPENDENT OF RAINFALL. CONTRACTOR TO PROPOSE METHOD OF DIRECTING FLOW DURING CONSTRUCTION ACTIVITIES.
- INSTALL ENGINEER-APPROVED MEASURES TO DEWATER THE REPAIR AREA DURING CONSTRUCTION ACTIVITIES.
- REMOVE AND DISPOSE OF EXISTING LOOSE SOILS, DEBRIS AND ROCKS FROM WITHIN THE AREA IDENTIFIED TO BE REPAIRED FOR SUPPORT OF THE HEADWALL/SPLASH APRON. REMOVAL SHALL BE TO COMPETENT MATERIAL FOR SUPPORT OF THE PROPOSED CONSTRUCTION ACTIVITIES.
- REMOVE AND DISPOSE OF EXISTING MATERIALS FOR THE CONSTRUCTION OF THE TOE OF THE COMPACTED CLAY AND RENO MATTRESS.
- PREPARE AND COMPACT THE SUBGRADE USING MECHANICAL METHODS. SUBGRADE WILL BE INSPECTED AND APPROVED BY ENGINEER PRIOR TO SUBSEQUENT PLACEMENT.
- PLACE GEOTEXTILE OVER SUBGRADE AND SAND-CEMENT FILLED BAGS TO PROVIDE CONTAINMENT OF THE FLOWABLE FILL (CONTROLLED LOW STRENGTH MATERIAL - CLSM). PLACE SAND-CEMENT FILLED BAGS TO TIE-IN TO EXISTING SLOPES PROVIDING A SEAL FOR THE PLACEMENT OF THE CLSM.
- DRILL 1-INCH DIAMETER HOLES THROUGH EXISTING CONCRETE SPLASH APRON (APPROXIMATELY 4 HOLES-EVENLY SPACED THROUGHOUT THE APRON) TO ALLOW AIR TO EXIT FROM UNDER THE SLAB DURING PLACEMENT OF CLSM TO ENSURE FLOWABLE FILL IS IN COMPLETE CONTACT WITH UNDERSIDE OF EXISTING CONCRETE HEADWALL/SPLASH APRON.
- PLACE CLSM TO TOP OF SANDBAGS (APPROXIMATELY 9" BELOW BOTTOM OF CONCRETE SPLASH APRON).
- ONCE THE CLSM IS CURED, BEGIN CONSTRUCTING THE COMPACTED CLAY TO AN ELEVATION EQUAL TO THE BOTTOM OF THE RENO MATTRESS. FIELD FIT THE LATERAL EDGES OF THE COMPACTED CLAY TO MATCH THE ADJACENT SLOPES. PLACE PER COMPACTED CLAY NOTES ON THIS SHEET.
- INSTALL A 2-INCH DIAMETER HOLE THROUGH THE SPLASH APRON AND CONTINUE PLACING THE CLSM UNTIL MATERIAL RISES UP UNIFORMLY THROUGH 1-INCH DIAMETER AIR HOLES.
- ONCE CLSM IS CURED, PATCH ALL HOLES NOT FLUSH TO THE TOP OF THE SPLASH APRON WITH CONCRETE GROUT (CONCRETE MORTAR TYPE R-3 PER MDOT CONSTRUCTION SPECIFICATION ITEM 702).
- FINISH PLACING COMPACTED CLAY AND RENO MATTRESS TO LIMITS AS SHOWN ON THE PLANS.
- FINAL CLEAN-UP ALL AREAS OF REPAIR AND PLACE RIP-RAP AS NEEDED TO ENSURE ALL AREAS ARE SUFFICIENTLY HARDENED AGAINST FLOW.
- REMOVE WATER CONTROL MEASURES AND FINAL SEED ALL DISTURBED AREAS PER THESE PLANS.



- POST GUARD BOLLARD COVER OR APPROVED EQUIVALENT.
- ADD YELLOW BOLLARD COVER TO ALL PROPOSED BOLLARDS AND EXISTING BOLLARDS TO REMAIN.



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