

BENZIE COUNTY ROAD COMMISSION

AND THE

CONSERVATION RESOURCE ALLIANCE

PLANS OF PROPOSED IMPROVEMENTS

THE NORTH BRANCH PLATTE RIVER STREAM CROSSINGS PROJECT

BENZIE COUNTY: 2 AOP SITES

BENZIE COUNTY - PLATTE TOWNSHIP

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS, OR IN THE SPECIFICATIONS, ALL MATERIALS AND WORKMANSHIP SHALL BE ACCORDING TO THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, 2012 EDITION.

THE DESIGN OF THESE TWO STRUCTURES IS BASED ON THE CURRENT AASHTO DESIGN SPECIFICATION HS-20 LOADING (SITE 1) AND HS-25 LOADING (SITE 2).

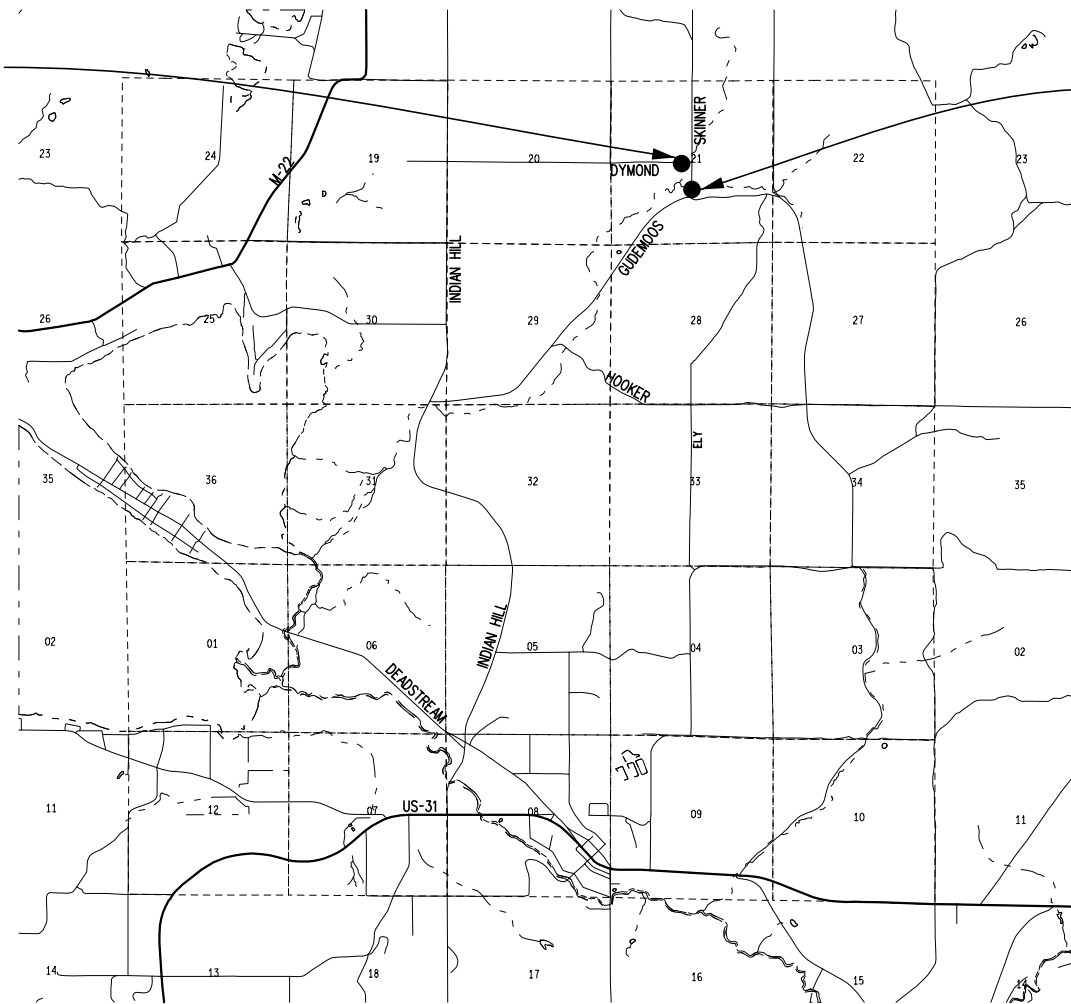
PLACING OF TEMPORARY TRAFFIC CONTROL ITEMS SHALL BE DONE IN ACCORDANCE WITH THE 2005 EDITION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, AS REVISED.

PLAN INDEX

SHEET NUMBER	SHEET DESCRIPTION
1	TITLE SHEET
2	SITE 1 - PLAN OF SITE
3	SITE 2 - PLAN OF SITE
4	SITE 2 - PLAN OF STRUCTURE

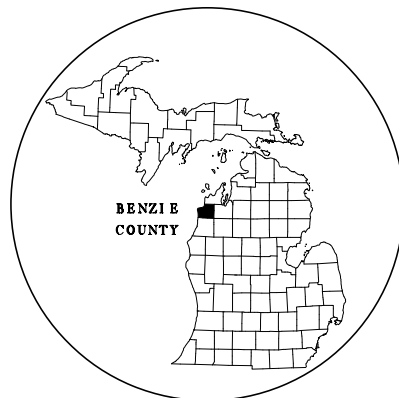
**SITE 1
PLT-P-10
DYMOND ROAD OVER TRIB TO NORTH
BRANCH PLATTE RIVER**

**SITE 2
PLT-P-3
SKINNER ROAD OVER NORTH
BRANCH PLATTE RIVER**



TRAFFIC DATA

A.D.T..... LESS THAN 100
% COMMERCIAL..... NA
DESIGN SPEED..... 55 MPH



COUNTY KEY

PLANS FOR: STRUCTURE REPLACEMENTS FOR AQUATIC ORGANISM PASSAGE IMPROVEMENTS AT 2 SITES.

BENZIE COUNTY ROAD COMMISSION APPROVAL

BENZIE COUNTY ROAD COMMISSION MANAGER

DATE

PREPARED UNDER SUPERVISION OF

PATRICK J. MIDDLETON, P.E.
REGISTERED PROFESSIONAL ENGINEER

45673
REGISTRATION NUMBER



3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
OR 811

DATE	SHEET NO.	TOTAL SHEETS
3/11/2019	1	4

SECTION 21
T27N R14W
PLATTE TWP

TRIBUTARY TO N
BRANCH PLATTE RIVER

PROP 30' OF CSP ARCH, 57" X 38"

EX 15" CMP CULVERTS (2)

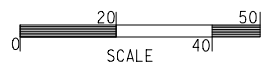
EX ROW 66'

DYMOND RD

FLOW

SKINNER RD

SITE PLAN



SECTION 21
T27N R14W
PLATTE TWP

SOIL EROSION AND
SEDIMENTATION CONTROL ITEMS

- ⑦ PLAIN RIPRAP W/GEOTEXTILE LINER
- ②⑥ SILT FENCE

SILT FENCE SHALL BE PER MDOT STANDARD PLAN
R-96-E & SESC MANUAL

THE DESIGN OF THIS STRUCTURE SHALL BE BASED ON CURRENT AASHTO DESIGN SPECIFICATION
HS-20 LOADING.

EXISTING STRUCTURE

TWO 15" CMP CULVERTS
19' LONG

PROPOSED STRUCTURE

30' OF 57" X 38" CSP ARCH
CULV

CONTROL POINTS

CP #1 - SET 1/2" REBAR
APPROX STA 12+70, 13' RT
N = 5009.17
E = 5056.98
Z = 990.03

CP #2 - SET 1/2" REBAR
APPROX STA 9+60
N = 5000.00
E = 4755.01
Z = 1000.00

THE WORK COVERED BY THESE PLANS INCLUDES TEMPORARY WATER DIVERSION, REMOVAL OF THE EXISTING CULVERTS, MAINTAINING TRAFFIC, CONSTRUCTION OF THE PROPOSED STRUCTURE AND APPROACHES, SLOPE RESTORATION AND RIPRAP.

MEASURES SHALL BE TAKEN TO PREVENT DEBRIS FROM FALLING FROM THE STRUCTURE. IF DEBRIS FALLS INTO THE WATERWAY, IT SHALL BE REMOVED WITHIN 24 HOURS. SINCE DISTURBANCE OF THE WATERWAY BOTTOM MAY BE AS HARMFUL AS THE DEBRIS ITSELF, THE PREVENTIVE MEASURES MUST BE EFFECTIVE.

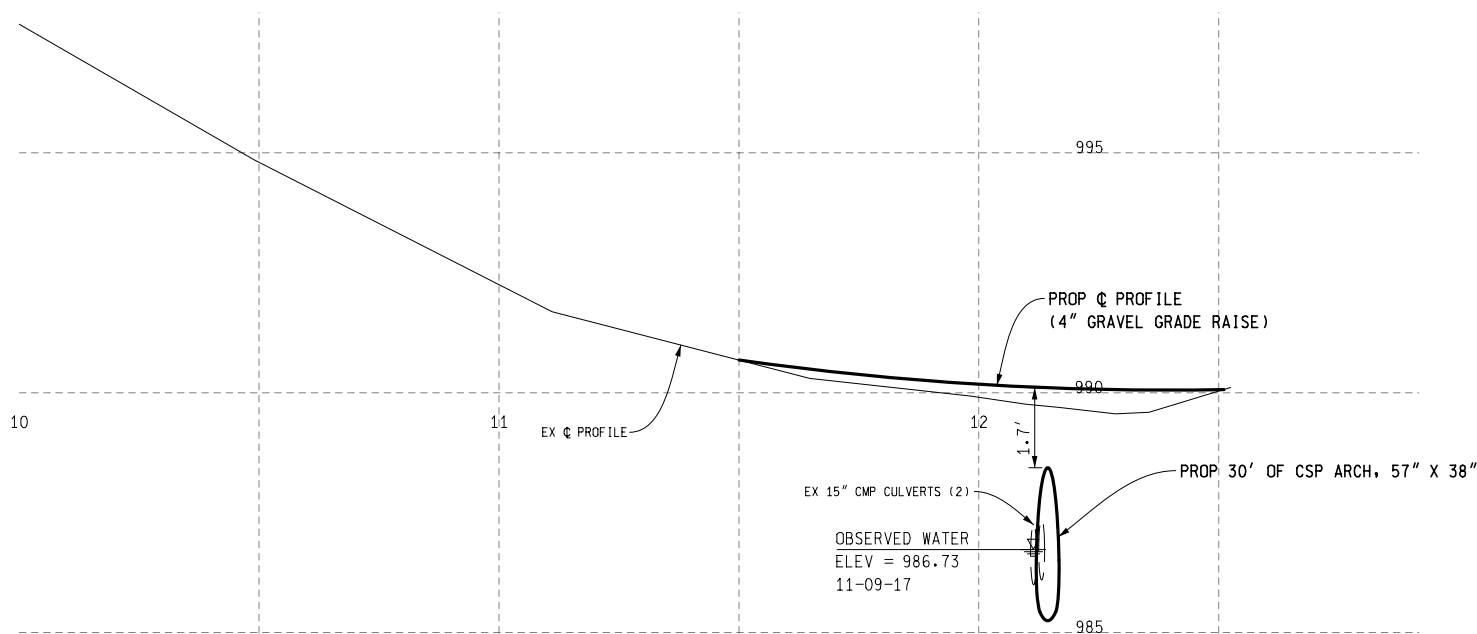
WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXIST DURING CONSTRUCTION.

IMMEDIATELY AFTER CONSTRUCTION, SLOPE PROTECTION AND SEEDING OR SODDING SHALL BE PLACED ON THE ADJACENT SLOPES.

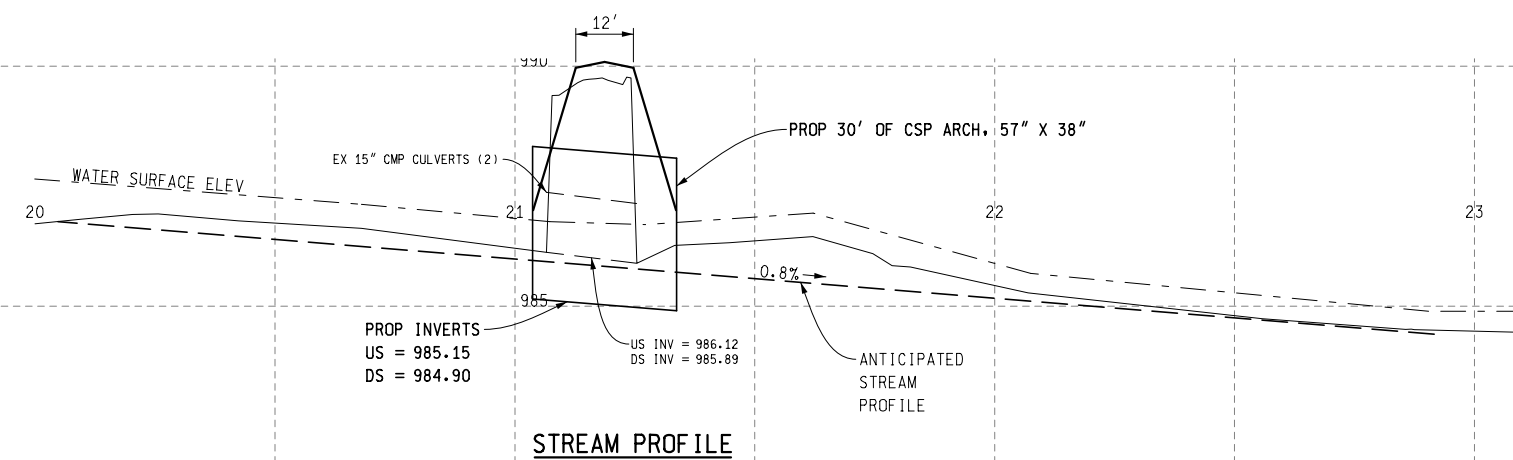
FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMANCE WITH PUBLIC ACT 53, 1974, THE CONTRACTOR SHALL DIAL 1-800-482-7171 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EARTH-DISTURBING ACTIVITIES. PLACE TURF ESTABLISHMENT ITEMS AS SOON AS POSSIBLE ON POTENTIAL ERODIBLE SLOPES AS DIRECTED BY THE ENGINEER. CRITICAL DITCH GRADES SHALL BE PROTECTED WITH EITHER SOD OR SEED/MULCH OR MULCH BLANKET AS DIRECTED BY THE ENGINEER.

PLAN ELEVATIONS AND COORDINATES ARE BASED ON A LOCAL DATUM.



PROFILE AT CONSTRUCTION



STREAM PROFILE



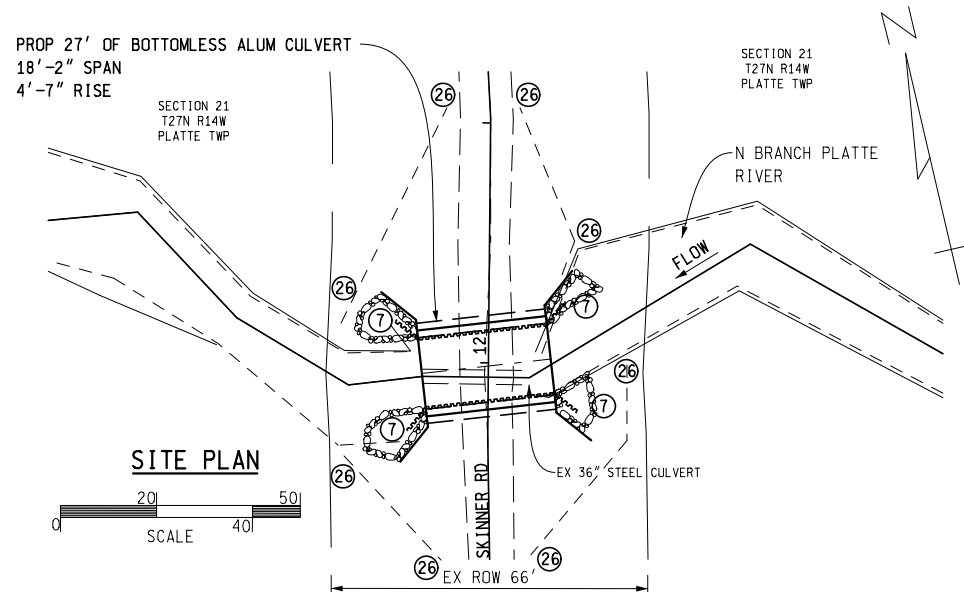
3 WORKING DAYS
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800-482-7171
OR 811



DYMOND RD OVER TRIB TO N BRANCH PLATTE RIVER - PLAN OF SITE

DATE	THE NORTH BRANCH PLATTE RIVER STREAM CROSSINGS PROJECT	SHEET	OF
3/11/2019		2	4

10:08:50 AM 3/11/2019



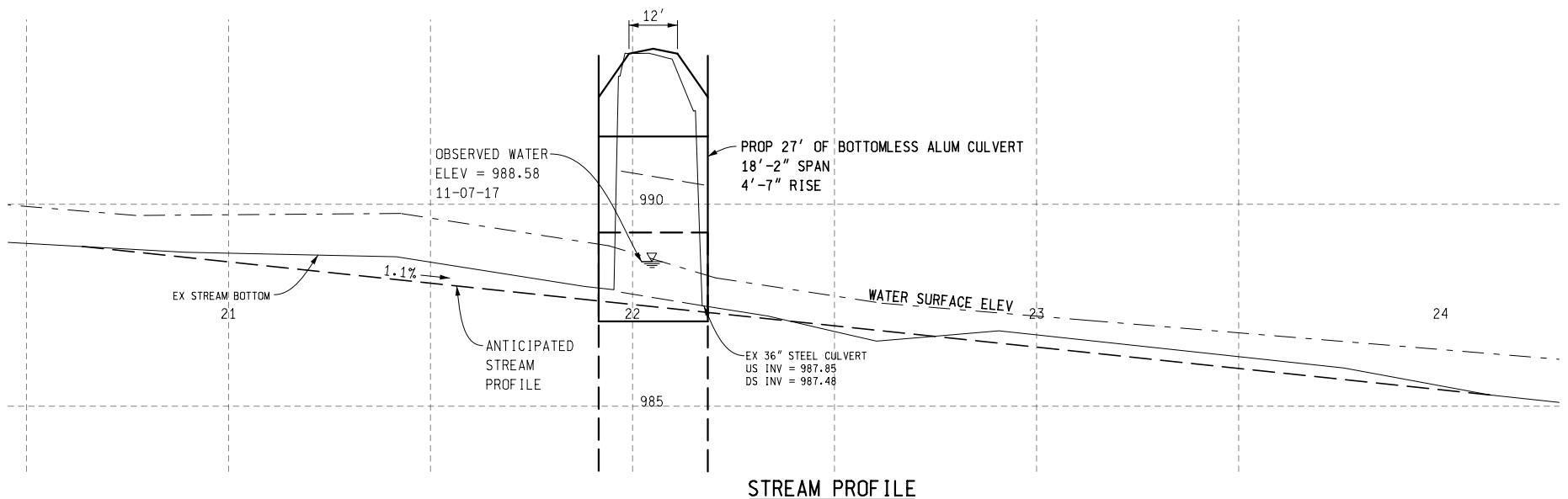
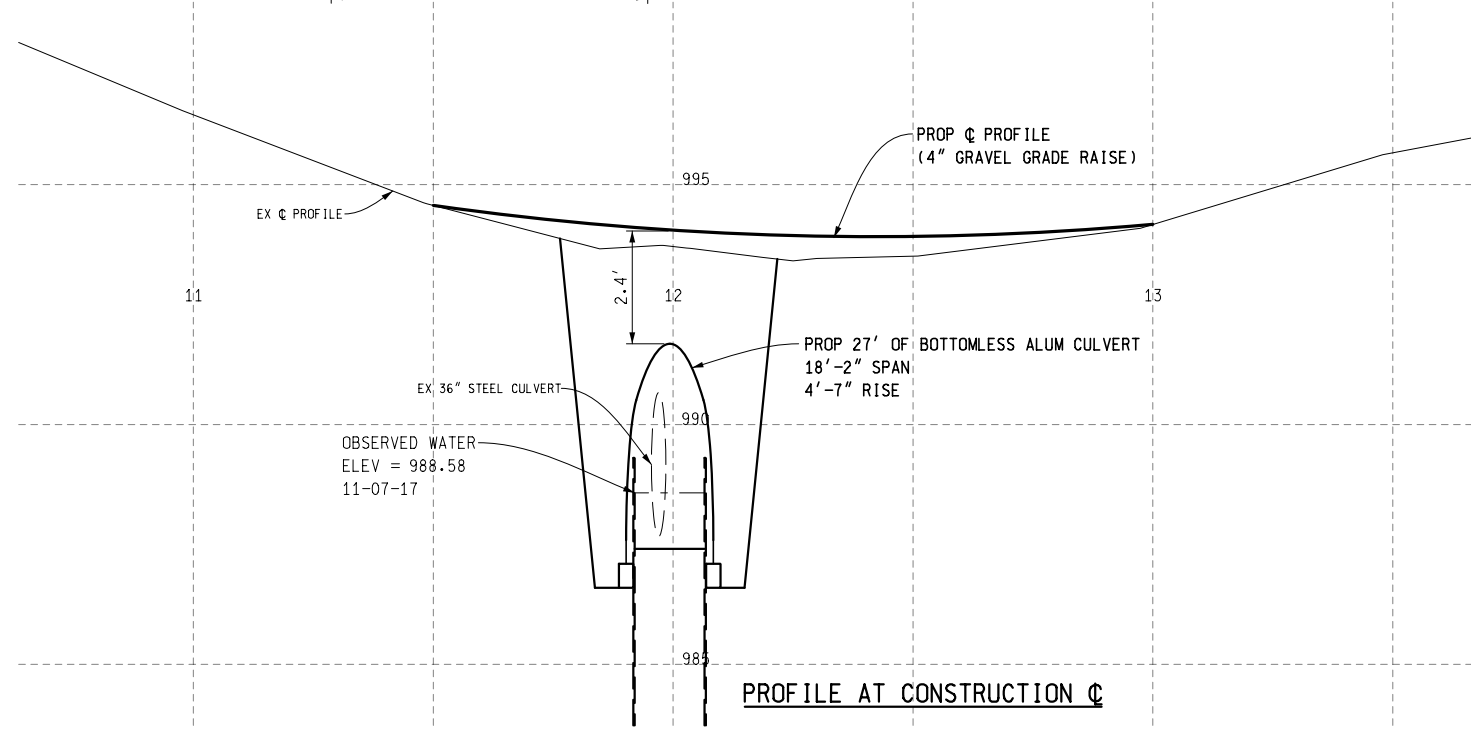
SOIL EROSION AND SEDIMENTATION CONTROL ITEMS	
⑦	PLAIN RIPRAP W/GEOTEXTILE LINER
②⑥	SILT FENCE

SILT FENCE SHALL BE PER MDOT STANDARD PLAN R-96-E & SESC MANUAL

EXISTING STRUCTURE
36" STEEL CULV 22' LONG

PROPOSED STRUCTURE
27' BOTTOMLESS 18'-2" SPAN X 4'-7" RISE ALUM CULVERT

CONTROL POINTS
CP #1 - SET 1/2" REBAR APPROX STA 10+07, 12' LT N = 4799.41 E = 5000.00 Z = 1000.00
CP #2 - SET 1/2" REBAR APPROX STA 14+42 N = 5233.78 E = 5000.00 Z = 996.88



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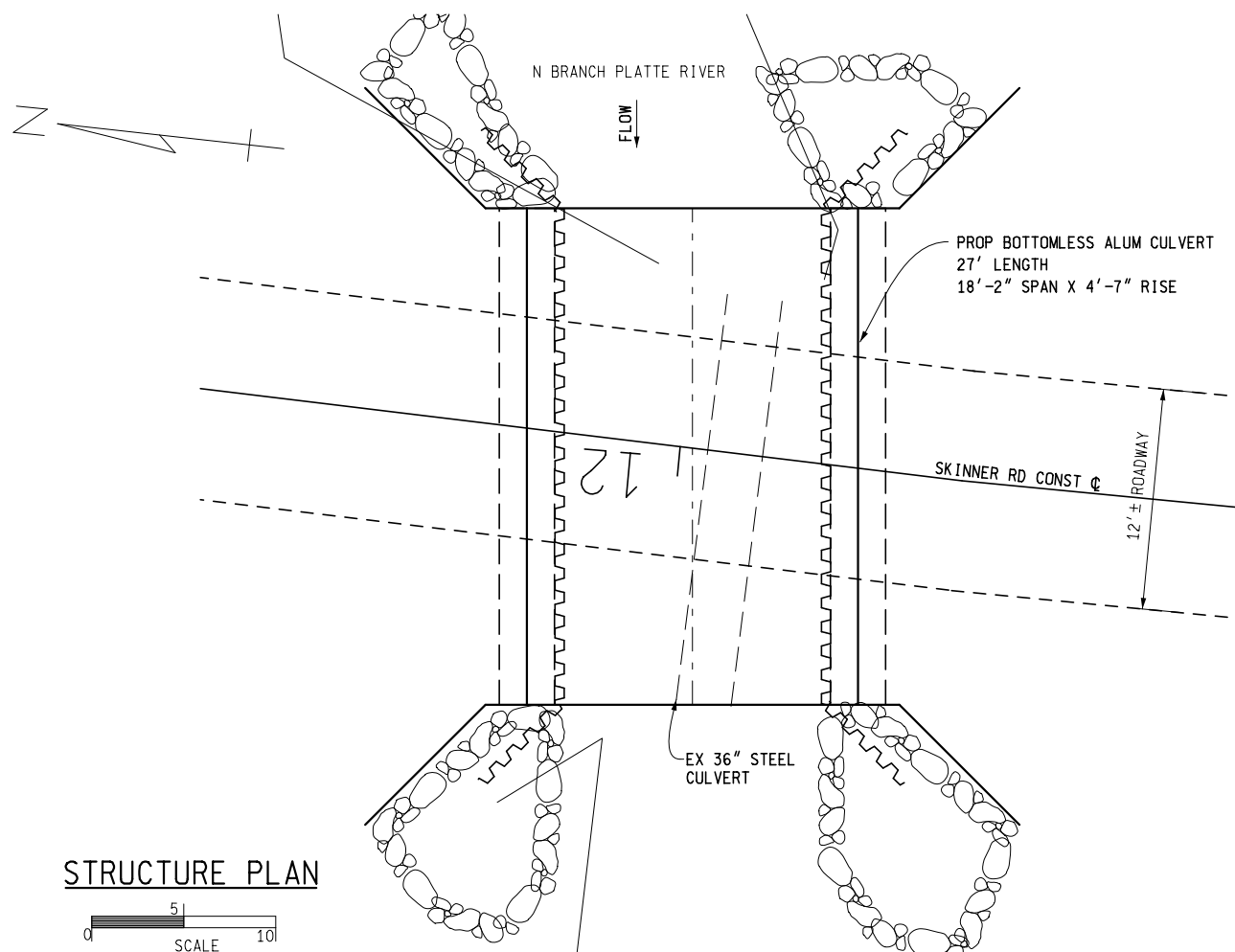


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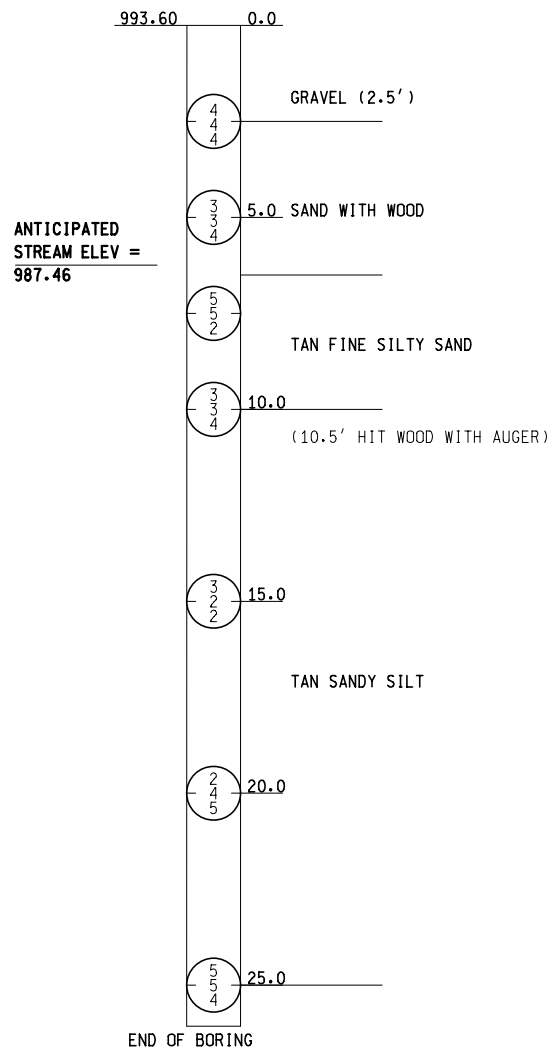


SKINNER RD OVER N BRANCH PLATTE RIVER - PLAN OF SITE			
DATE	THE NORTH BRANCH PLATTE RIVER STREAM CROSSINGS PROJECT	SHEET	OF
3/11/2019		3	4

3/11/2019 10:21:28 AM



TEST HOLE 1
LOCATION: EAST SIDE OF EXISTING CULVERT



SUMMARY OF HYDRAULIC ANALYSIS							
EXISTING				PROPOSED			
FLOOD DATA	DIS-CHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY IN D/S CHANNEL (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE	VELOCITY IN D/S CHANNEL (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN WS EL 175' U/S OF PROPOSED STRUCTURE
2 YEAR	1	988.35	1.88	987.87	1.09	0.92	0.0
50 YEAR	70	993.66	4.57	989.25	3.26	21.45	-2.81
100 YEAR	120	993.96	5.76	989.77	4.08	29.40	-2.72

THE CONTRIBUTING DRAINAGE AREA TO THIS CROSSING IS 9.8 SQUARE MILES.

THE WATER SURFACE AND/OR ENERGY GRADE ELEVATIONS SHOWN ON THIS HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN.

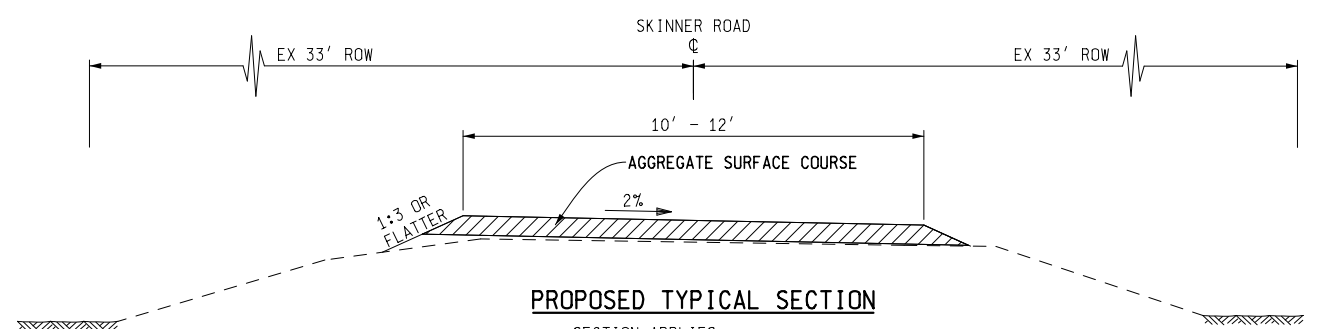
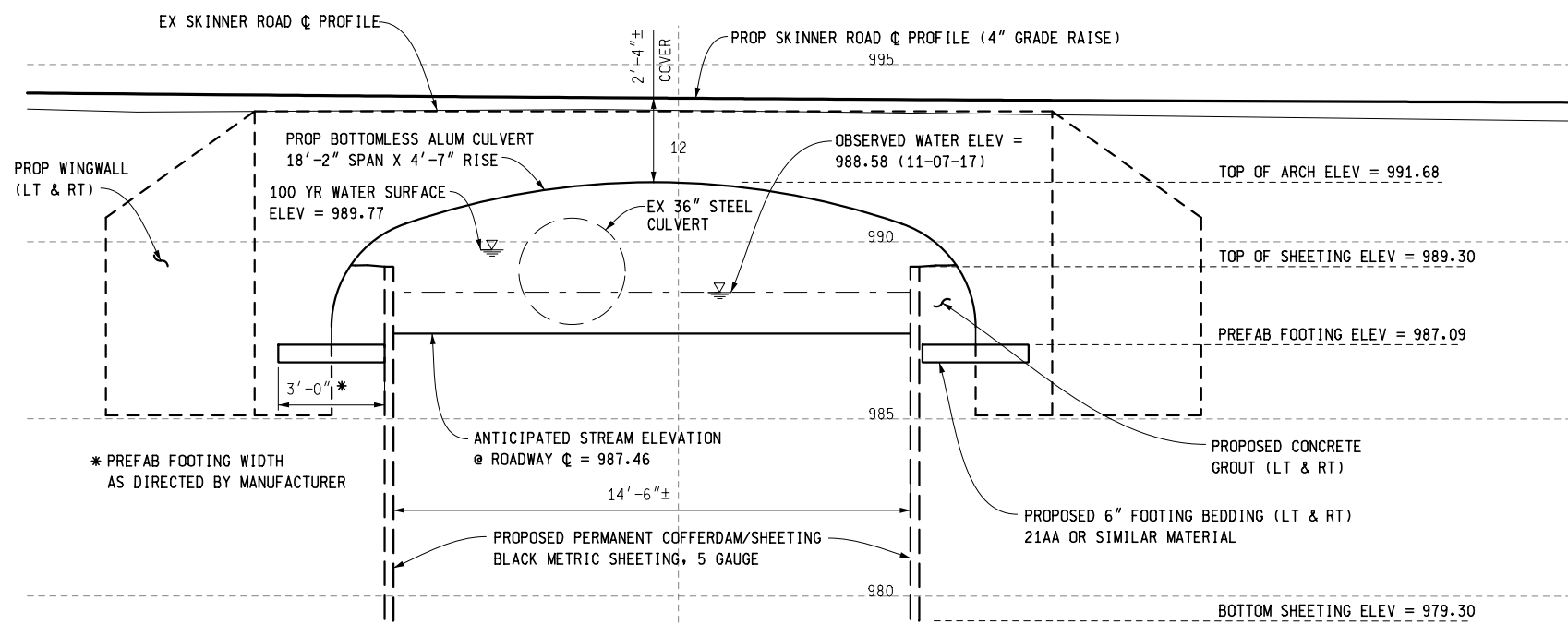
DESIGN, FABRICATION AND DELIVERY OF STRUCTURE WILL BE BY THE BCRC. THIS WORK IS INCLUDED IN THE PAY ITEM "STRUCTURE, - DELIVERED".

THE DESIGN OF THIS STRUCTURE SHALL BE BASED ON CURRENT AASHTO DESIGN SPECIFICATION **HS-25 LOADING.**

WITHOUT THE PREVENTATIVE MEASURES SHOWN ON THESE PLANS, THERE IS A POSSIBILITY THAT STREAM BED SCOUR MAY OCCUR. THE ESTIMATED TOTAL SCOUR DEPTH IS CALCULATED TO BE 4.0 FEET. THESE DEPTHS ARE BASED ON A 100 YEAR RUN OFF EVENT.

GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP, HEAVY.

WATER LEVEL DURING DRILLING: 6.5'
BORING CONDUCTED ON 11-05-2017
BY PEARSON DRILLING COMPANY



PROPOSED TYPICAL SECTION

SECTION APPLIES:
POB STA 11+50 TO POE STA 13+00

EXISTING ROADWAY CONSISTS OF 10'± GRAVEL/SAND SURFACE

STRUCTURE ELEVATION



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SKINNER RD OVER N BRANCH PLATTE RIVER - PLAN OF STRUCTURE

DATE	THE NORTH BRANCH PLATTE RIVER STREAM CROSSINGS PROJECT	SHEET	OF
3/11/2019		4	4

106606 AM 3/11/2019