

HOOSIER CREEK TRUNK SEWER

ELY, IOWA



CIVIL ENGINEERS
LAND PLANNERS
LAND SURVEYORS
LANDSCAPE ARCHITECTS
ENVIRONMENTAL SPECIALISTS

1917 S. GILBERT ST.
IOWA CITY, IOWA 52240
(319) 351-8282
www.mmsconsultants.net

Date Revision

TITLE SHEET

HOOSIER CREEK
TRUNK SEWER
PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC.
Date: 12/11/2020

Designed by: SBP Field Book No:

Drawn by: JEB Scale: NTS

Checked by: SBP Sheet No:

Project No: IOWA CITY 5701-077
GI100

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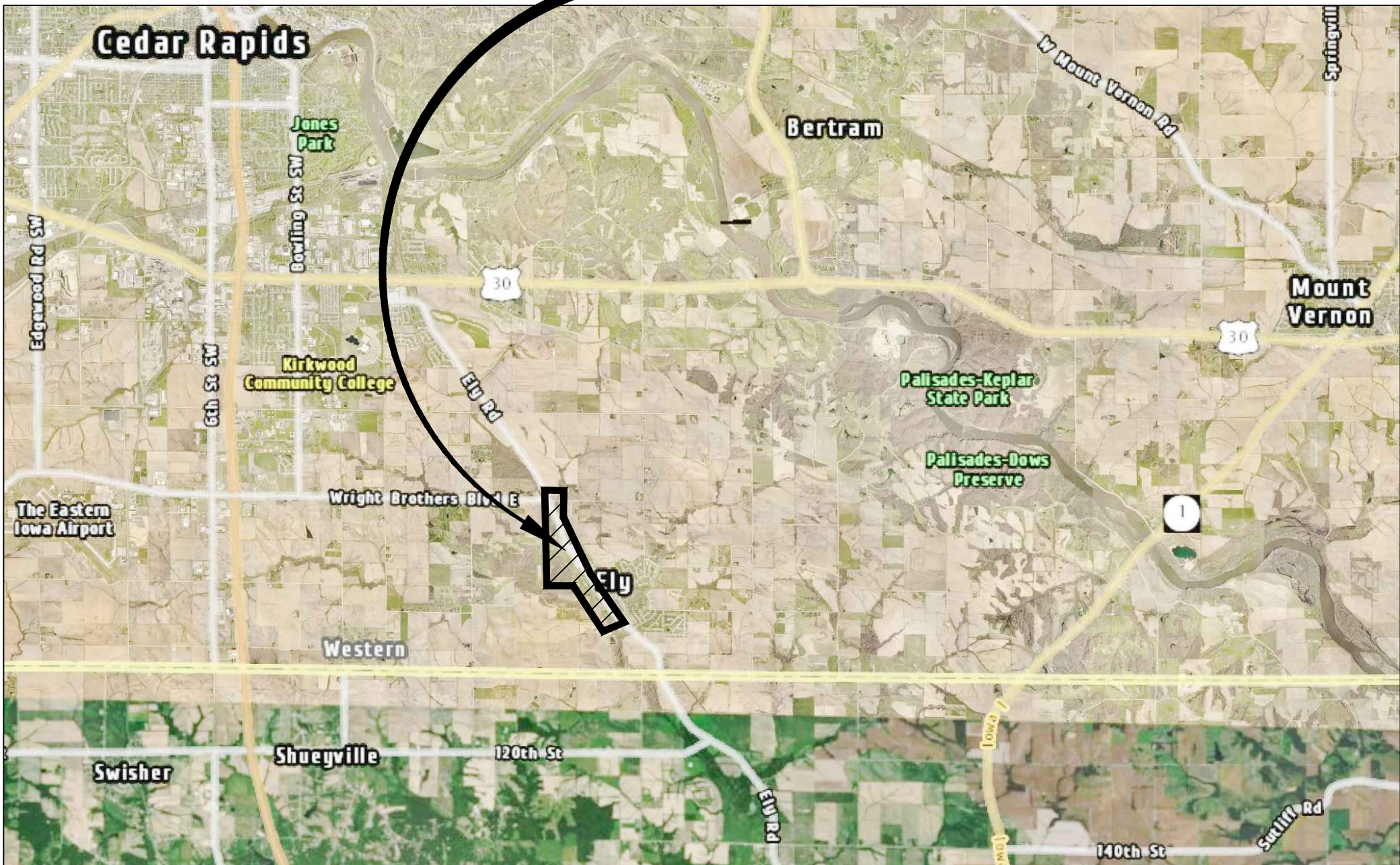
STANDARD LEGEND AND NOTES	
---	PROPERTY &/or BOUNDARY LINES
---	CONGRESSIONAL SECTION LINES
---	RIGHT-OF-WAY LINES
---	EXISTING RIGHT-OF-WAY LINES
---	CENTER LINES
---	EXISTING CENTER LINES
---	LOT LINES, INTERNAL
---	LOT LINES, PLATTED OR BY DEED
---	PROPOSED EASEMENT LINES
---	EXISTING EASEMENT LINES
---	BENCHMARK
---	RECORDED DIMENSIONS
---	CURVE SEGMENT NUMBER
(R) 22-1	
---EXIST---	---PROP---
⊙	POWER POLE
⊙	POWER POLE W/DROP
⊙	POWER POLE W/TRANS
⊙	POWER POLE W/LIGHT
⊙	GUY POLE
⊙	LIGHT POLE
⊙	SANITARY MANHOLE
⊙	FIRE HYDRANT
⊙	WATER VALVE
⊙	DRAINAGE MANHOLE
⊙	CURB INLET
⊙	FENCE LINE
⊙	EXISTING SANITARY SEWER
⊙	PROPOSED SANITARY SEWER
⊙	EXISTING STORM SEWER
⊙	PROPOSED STORM SEWER
⊙	WATER LINES
⊙	ELECTRICAL LINES
⊙	TELEPHONE LINES
⊙	GAS LINES
⊙	CONTOUR LINES (1' INTERVAL)
⊙	PROPOSED GROUND
⊙	EXISTING TREE LINE
⊙	EXISTING DECIDUOUS TREE & SHRUB
⊙	EXISTING EVERGREEN TREES & SHRUBS
THE ACTUAL SIZE AND LOCATION OF ALL PROPOSED FACILITIES SHALL BE VERIFIED WITH CONSTRUCTION DOCUMENTS, WHICH ARE TO BE PREPARED AND SUBMITTED SUBSEQUENT TO THE APPROVAL OF THIS DOCUMENT.	

MAYOR
ELDY MILLER

CITY ADMINISTRATOR
ADAM THOMPSON

COUNCIL
BEN SYMONDS
JUDY WERY
KAY HALE
DAN WHITAKER
WILLIAM TUTHILL

HOOSIER CREEK TRUNK SEWER ELY, IOWA



LOCATION MAP
NOT TO SCALE

UTILITY COMPANY CONTACTS		
SERVICE	SUPPLIER	PHONE NO.
TELEPHONE & CABLE TV	SOUTH SLOPE COOPERATIVE ATTN: BRIAN FRESE	319-227-7111
NATURAL GAS	MIDAMERICAN ENERGY ATTN: STACY HANK	319-298-5157
TELEPHONE & CABLE TV	AUREON NETWORK SERVICES ATTN: JEFF KLOCKO	515-830-0445
ELECTRICITY	LYNN COUNTY REC ATTN: JOHNA NUNEMAKER	319-298-5157
ELECTRICITY	ALLIANT ENERGY ATTN: LAURA BARR	319-286-1315
TELEPHONE & CABLE TV	MEDIACOM ATTN: JOE-ERNSTER OR DAVID RILEY	319-395-9699
WATER	CITY OF ELY ATTN: ADAM THOMPSON	319-848-4103
SEWER	CITY OF ELY ATTN: ADAM THOMPSON	319-848-4103

BENCHMARK INFORMATION			
POINT	ELEVATION	DATUM	DESCRIPTION
NO. 1	729.787	NAVD88	BENCHMARK, 99'± WEST OF WEST CURB ON STATE STREET ALONG SOUTH SIDE OF VISTA ROAD 40'± NORTH OF THE SOUTH CURB.

HORIZONTAL CONTROL			
POINT	NORTHING	EASTING	DESCRIPTION
H1	3420436.13	5444337.89	PK NAIL, CENTERLINE OF TRAIL NORTH OF DRIVEWAY AT 94 ELY ROAD
H2	3423715.43	5441406.98	CUT "X" IN SHOULDER OF ROAD EAST OF STATE STREET, SOUTH OF NORTH GATE DRIVE
H3	3424634.97	5440759.11	PK NAIL IN SHOULDER OF ROAD EAST OF STATE STREET, NORTH OF DRIVEWAY AT 1916 CO HWY W6E

UTILITIES

THE CONTRACTOR SHALL NOTIFY IOWA ONE CALL AT 811 OR 800/292-8989 NO LESS THAN 48 HRS. IN ADVANCE OF ANY DIGGING OR EXCAVATION.

WHERE PUBLIC UTILITY FIXTURES ARE SHOWN AS EXISTING ON THE PLANS OR ENCOUNTERED WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THESE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THERE MAY BE OTHERS, THE EXISTENCE OF WHICH IS PRESENTLY NOT KNOWN OR SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

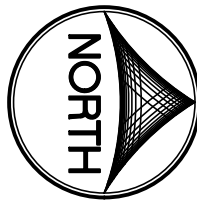
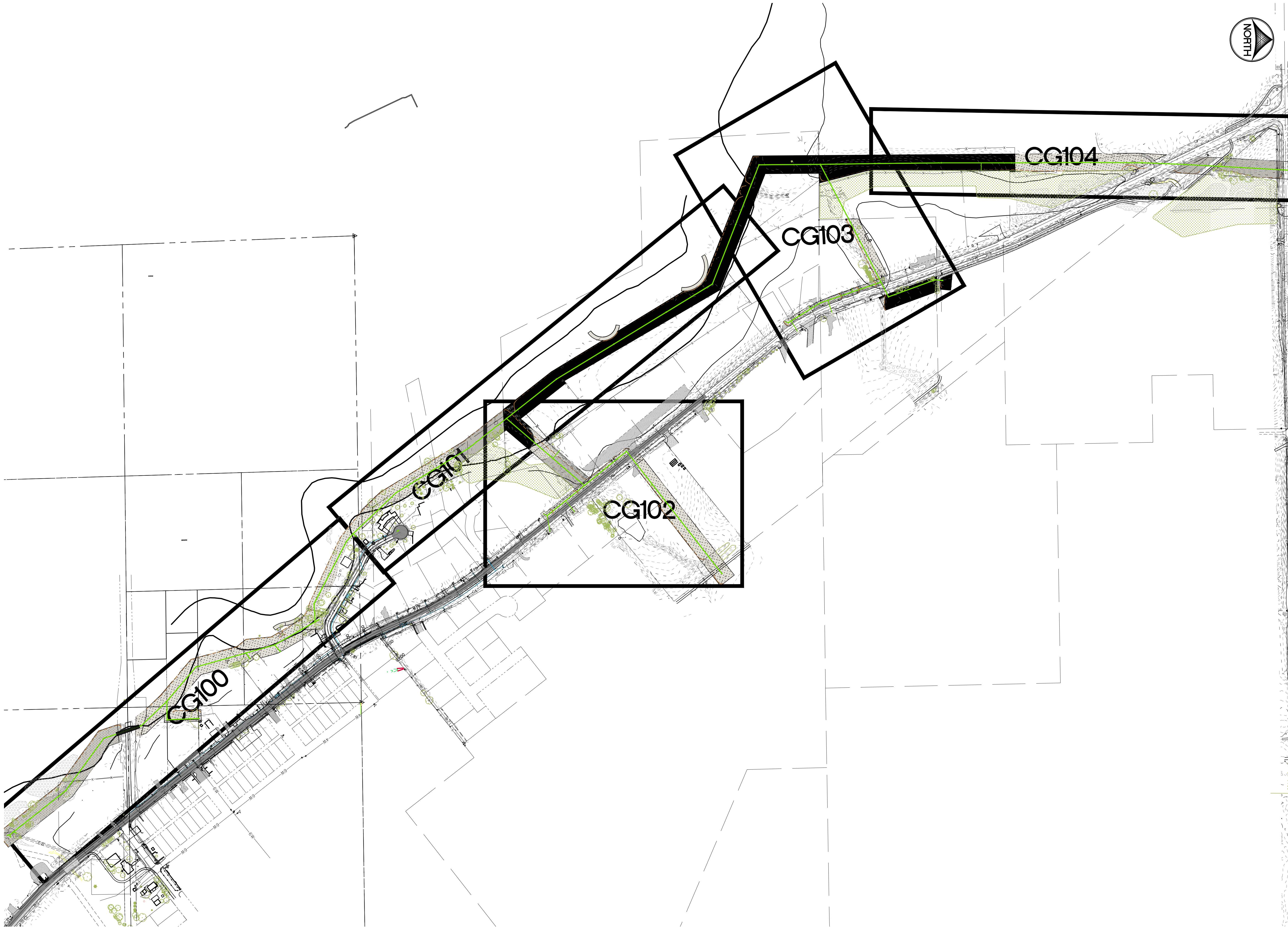
I hereby certify that this engineering document was prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

SCOTT B. POTTORFF
P.E. Iowa Lic. No. 16932

My license expires on December 31, 20__.

Pages of sheets covered by this seal:

5701-077



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ENVIRONMENTAL SPECIALISTS

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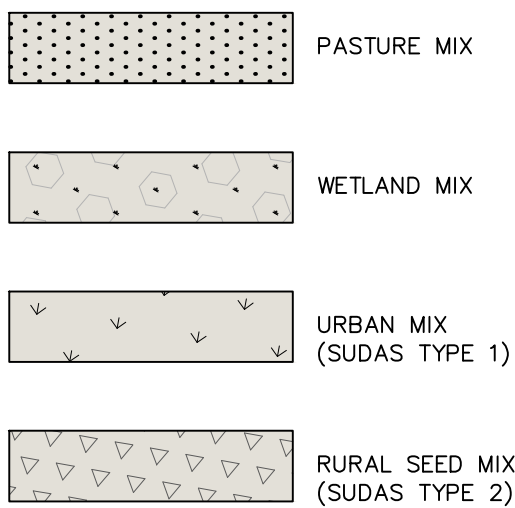
OVERALL SITE
EROSION
CONTROL AND
SWPPP AND
RESTORATION
SHEET PLAN

HOOSIER CREEK
TRUNK SEWER
PROJECT
CITY OF ELY
LINN COUNTY
IOWA

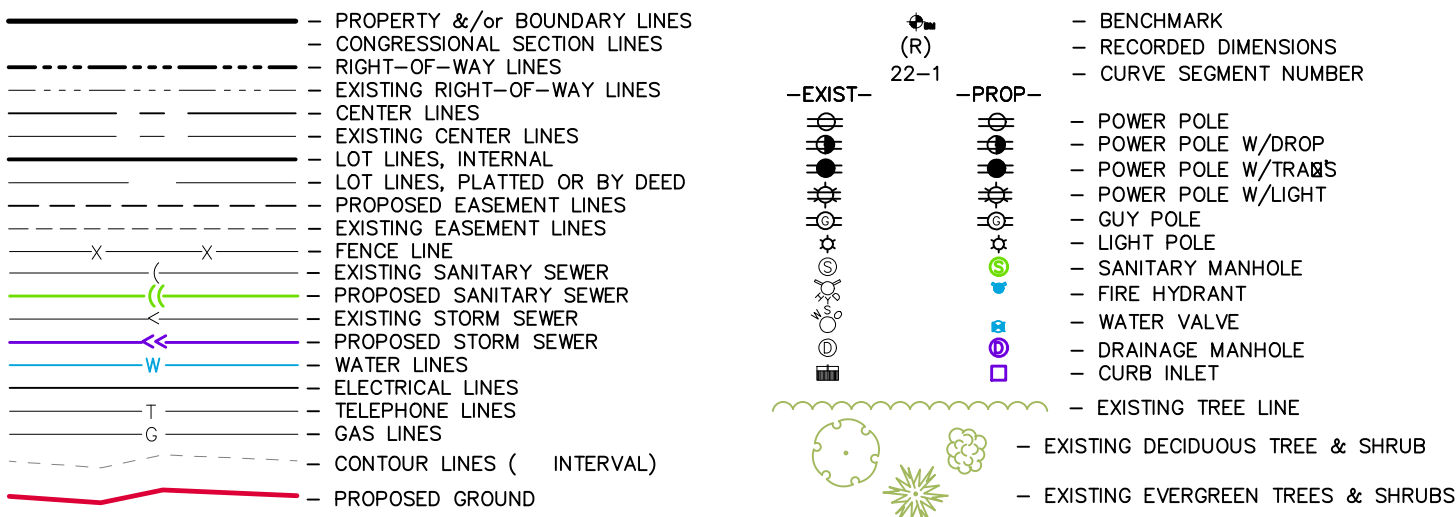
MMS CONSULTANTS, INC.

Date:	12/11/2020
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Drawn by:	JEB
Checked by:	SBP
Project No:	IOWA CITY
5701-077	CG-OA

RESTORATION SEEDING LEGEND

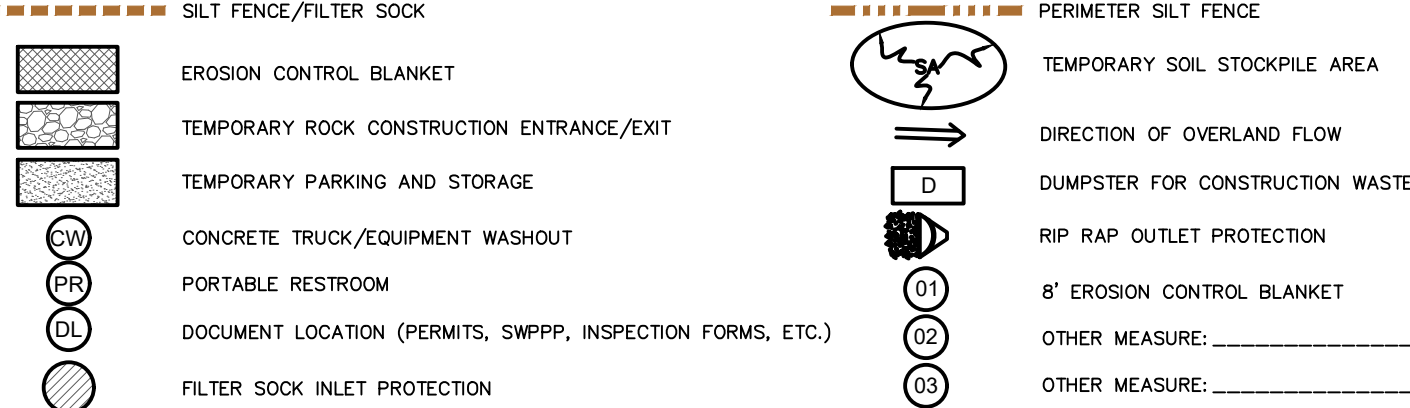


STANDARD LEGEND AND NOTES



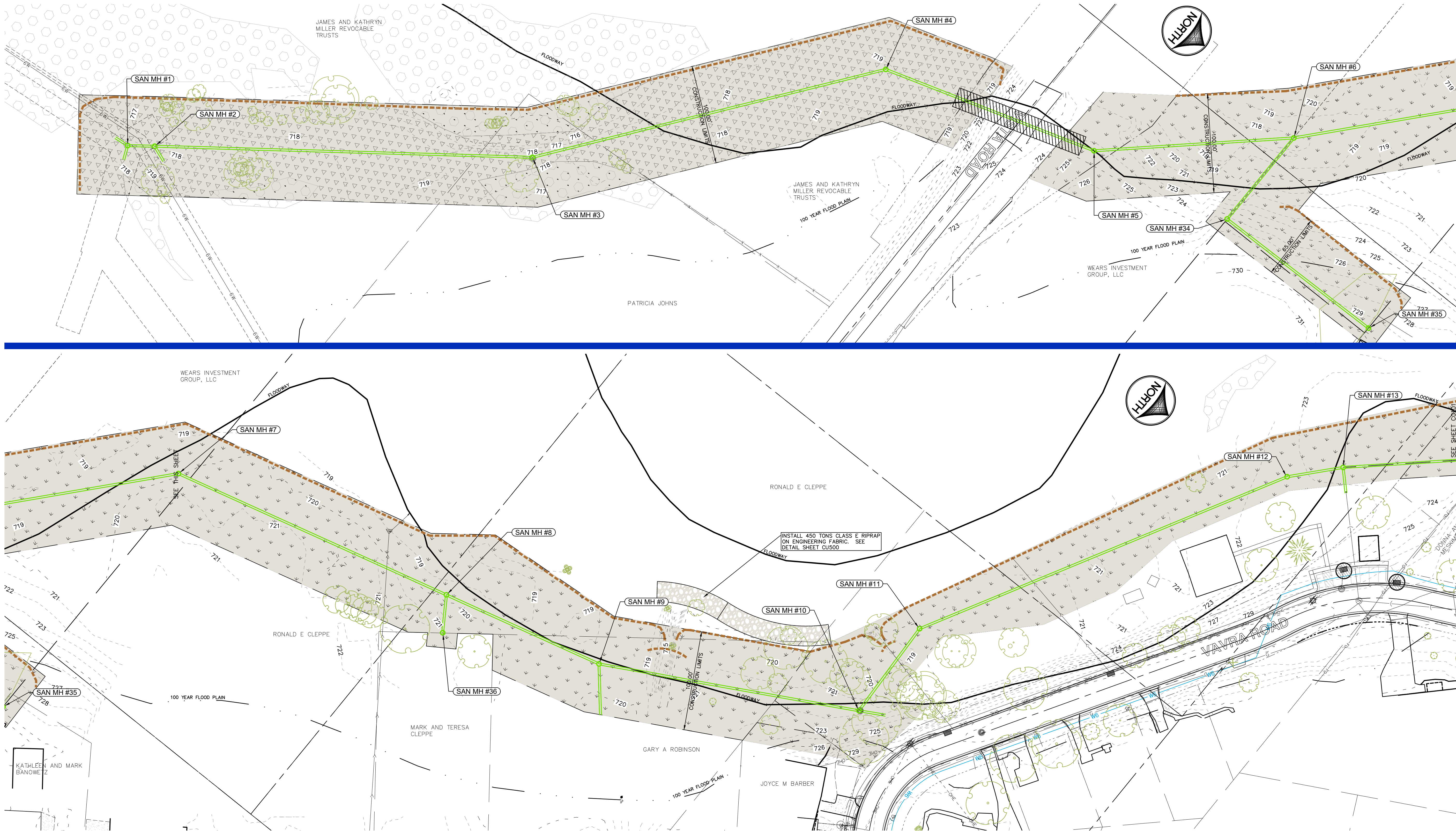
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EROSION CONTROL LEGEND



THE ABOVE LISTED ITEMS ARE SHOWN IN THEIR RECOMMENDED LOCATIONS. IF A CONTROL MEASURE IS ADDED OR MOVED TO A MORE SUITABLE LOCATION, INDICATE THE REVISION ON THIS SHEET. THE BLANKS LEFT FOR OTHER MEASURES SHOULD BE USED IF AN ITEM NOT SHOWN ABOVE IS IMPLEMENTED ON SITE. ADDITIONAL PRACTICES FOR EROSION PREVENTION AND SEDIMENT CONTROL CAN BE FOUND IN APPENDIX D OF THE SWPPP.

EROSION CONTROL MEASURES, INCLUDING, BUT NOT LIMITED TO, TEMPORARY ROCK CONSTRUCTION ENTRANCE, CONCRETE WASHOUT AND TEMPORARY PARKING ARE STORAGE AREAS, SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9040 SUDAS STANDARD SPECIFICATIONS.



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Date: Revision:

SITE EROSION CONTROL AND SWPPP AND RESTORATION PLAN

HOOSIER CREEK TRUNK SEWER PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC.		
Date:		12/11/2020
Designed by:	SBP	Field Book No:
Drawn by:	JEB	Scale: 1" = 50'
Checked by:	SBP	Sheet No:
Project No:	CG100	
IOWA CITY		
5701-077		

RESTORATION SEEDING LEGEND

- PASTURE MIX
- WETLAND MIX
- URBAN MIX (SUDAS TYPE 1)
- RURAL SEED MIX (SUDAS TYPE 2)

STANDARD LEGEND AND NOTES

- PROPERTY &/or BOUNDARY LINES
- CONGRESSIONAL SECTION LINES
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- EXISTING RIGHT-OF-WAY LINES
- CENTER LINES
- EXISTING CENTER LINES
- LOT LINES, INTERNAL
- LOT LINES, PLATTED OR BY DEED
- PROPOSED EASEMENT LINES
- EXISTING EASEMENT LINES
- FENCE LINE
- EXISTING SANITARY SEWER
- PROPOSED SANITARY SEWER
- EXISTING STORM SEWER
- PROPOSED STORM SEWER
- WATER LINES
- ELECTRICAL LINES
- TELEPHONE LINES
- GAS LINES
- CONTOUR LINES (INTERVAL)
- PROPOSED GROUND

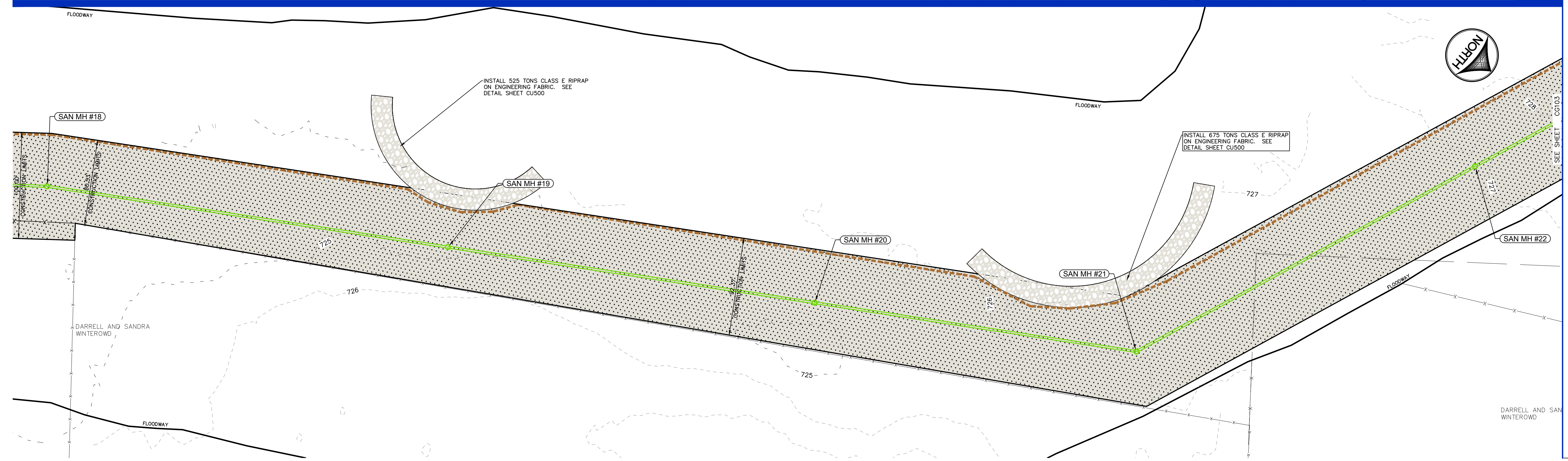
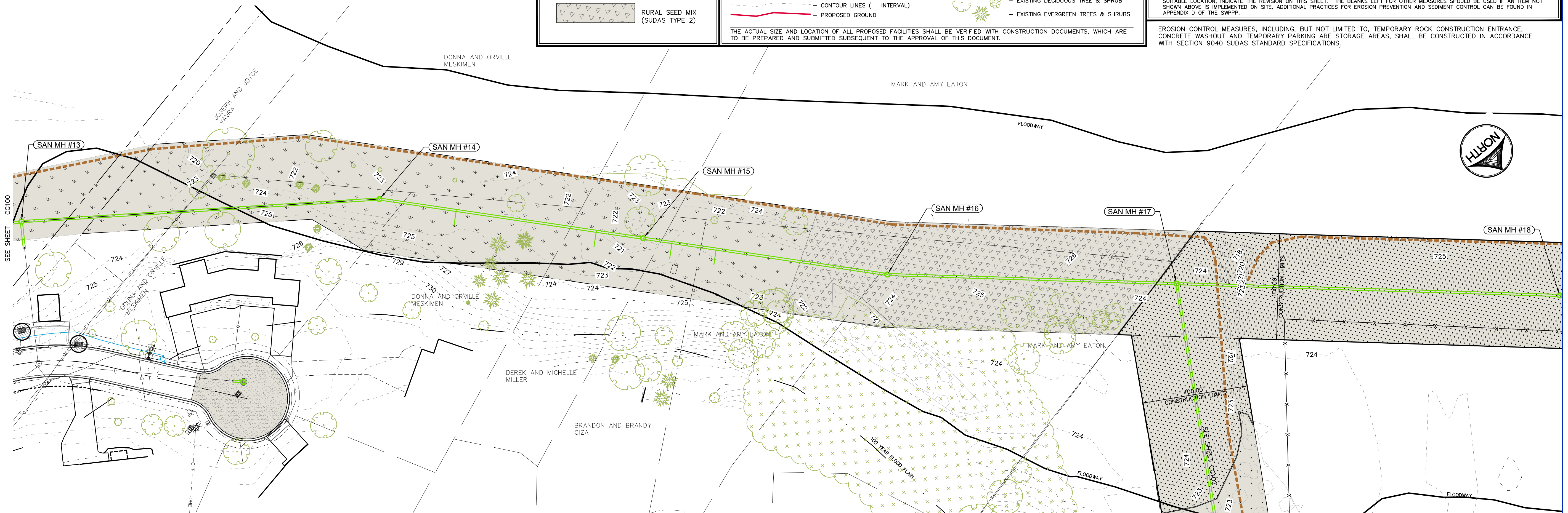
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EROSION CONTROL LEGEND

- SILT FENCE/FILTER SOCK
- EROSION CONTROL BLANKET
- TEMPORARY ROCK CONSTRUCTION ENTRANCE/EXIT
- TEMPORARY PARKING AND STORAGE
- CONCRETE TRUCK/EQUIPMENT WASHOUT
- PORTABLE RESTROOM
- DOCUMENT LOCATION (PERMITS, SWPPP, INSPECTION FORMS, ETC.)
- FILTER SOCK INLET PROTECTION
- PERIMETER SILT FENCE
- TEMPORARY SOIL STOCKPILE AREA
- DIRECTION OF OVERLAND FLOW
- DUMPSTER FOR CONSTRUCTION WASTE
- RIP RAP OUTLET PROTECTION
- 8' EROSION CONTROL BLANKET
- OTHER MEASURE: _____
- OTHER MEASURE: _____

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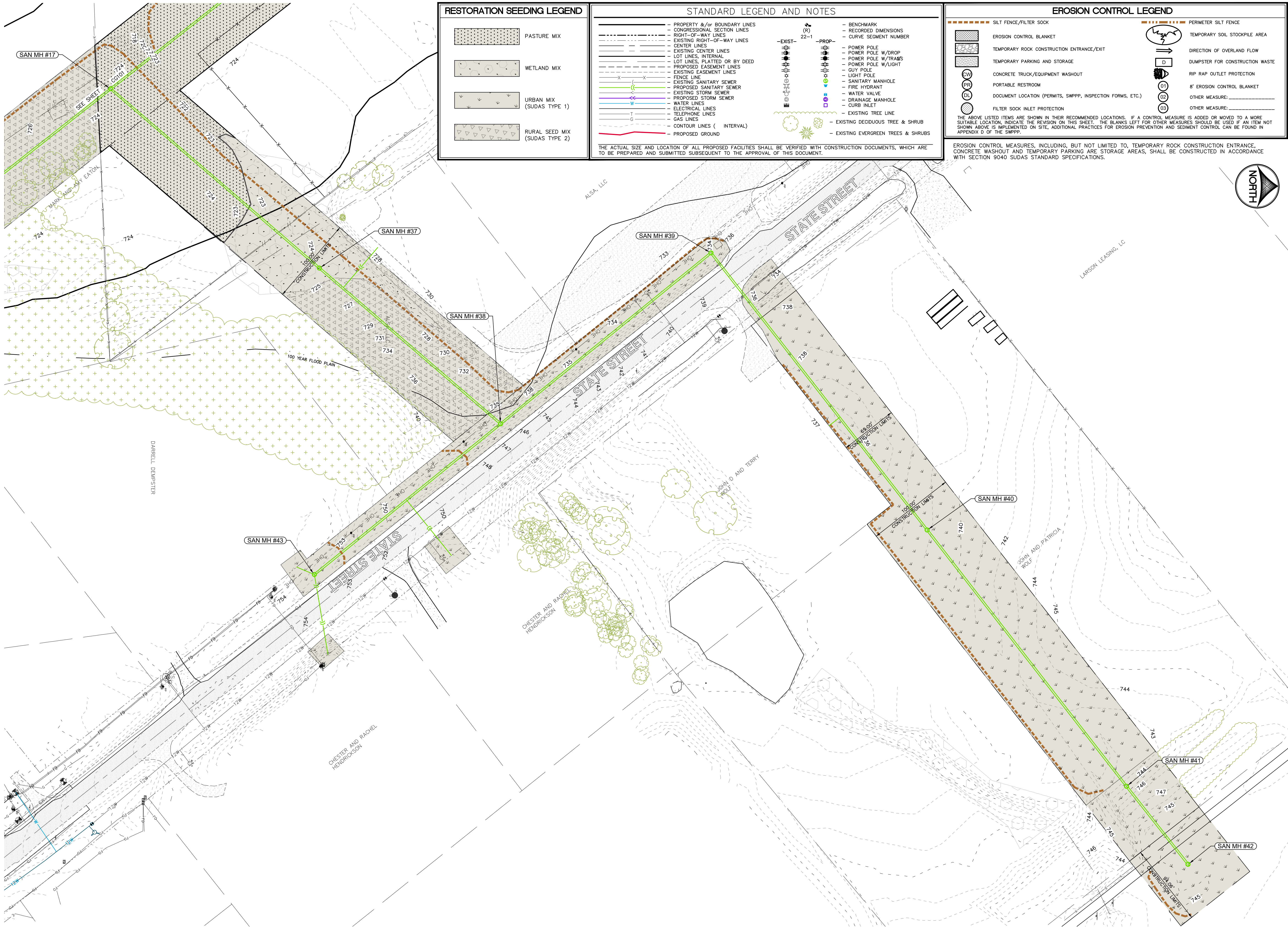
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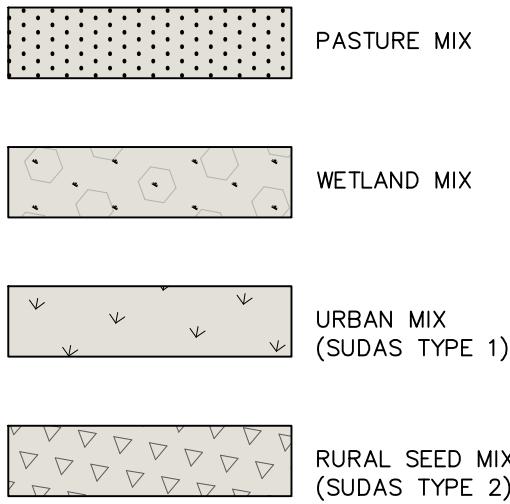
SITE EROSION CONTROL AND SWPPP AND RESTORATION PLAN

HOOSIER CREEK TRUNK SEWER PROJECT
CITY OF ELY
LINN COUNTY
IOWA

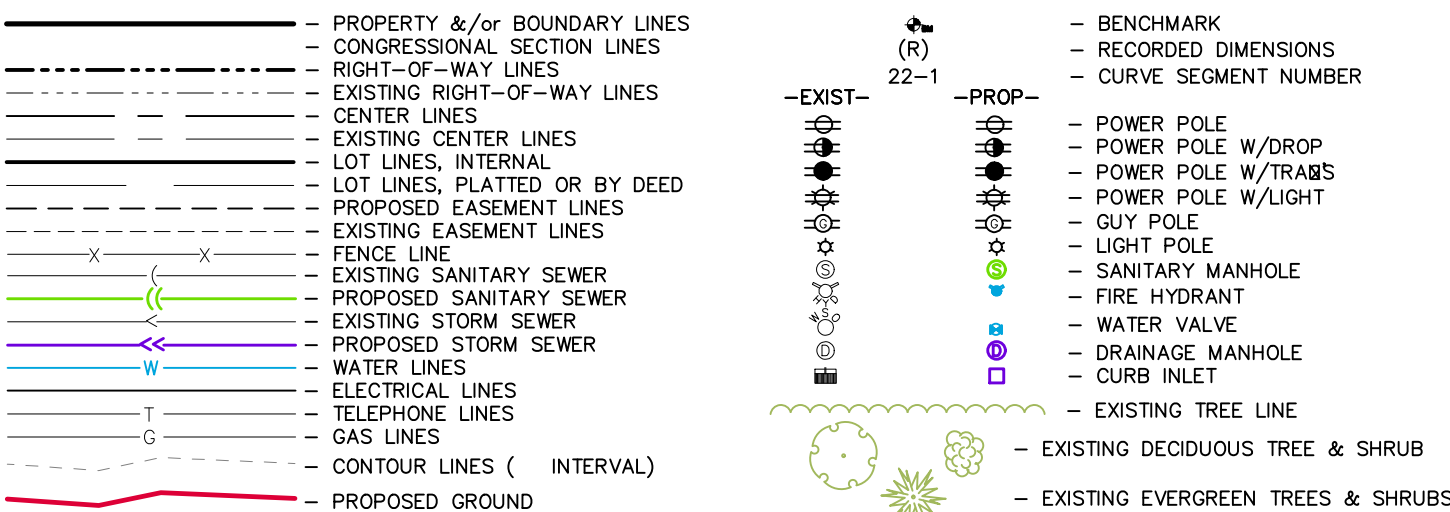
MMS CONSULTANTS, INC.	
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	5701-077



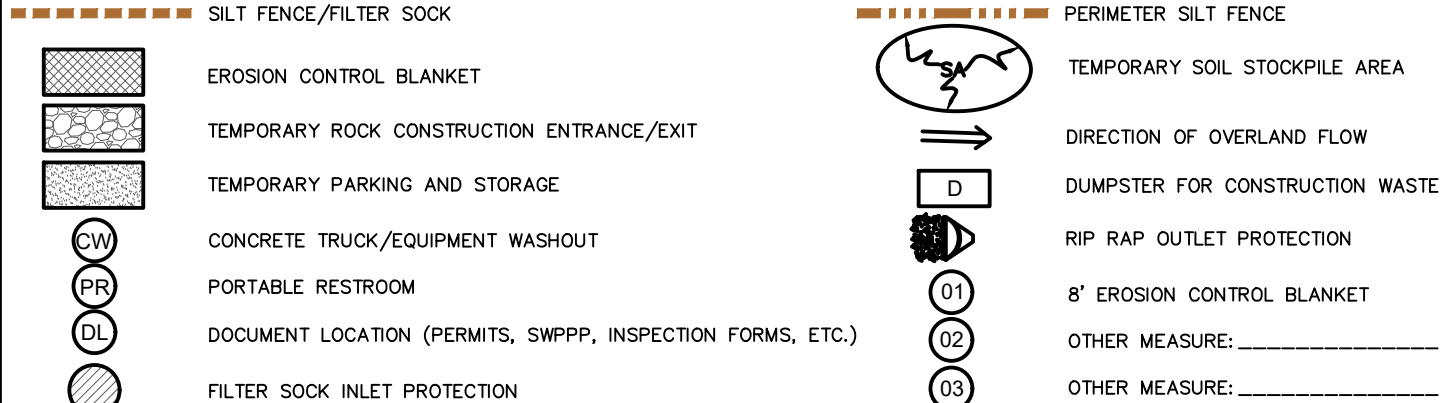
RESTORATION SEEDING LEGEND



STANDARD LEGEND AND NOTES



EROSION CONTROL LEGEND



EROSION CONTROL MEASURES, INCLUDING, BUT NOT LIMITED TO, TEMPORARY ROCK CONSTRUCTION ENTRANCE, CONCRETE WASHOUT AND TEMPORARY PARKING ARE STORAGE AREAS, SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 9040 SUDAS STANDARD SPECIFICATIONS.



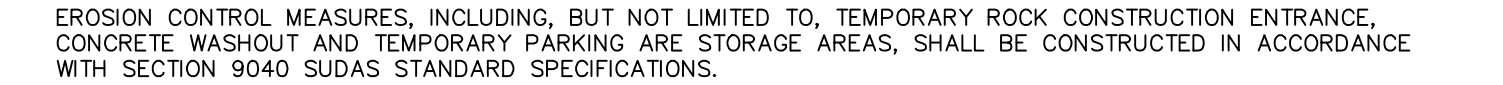
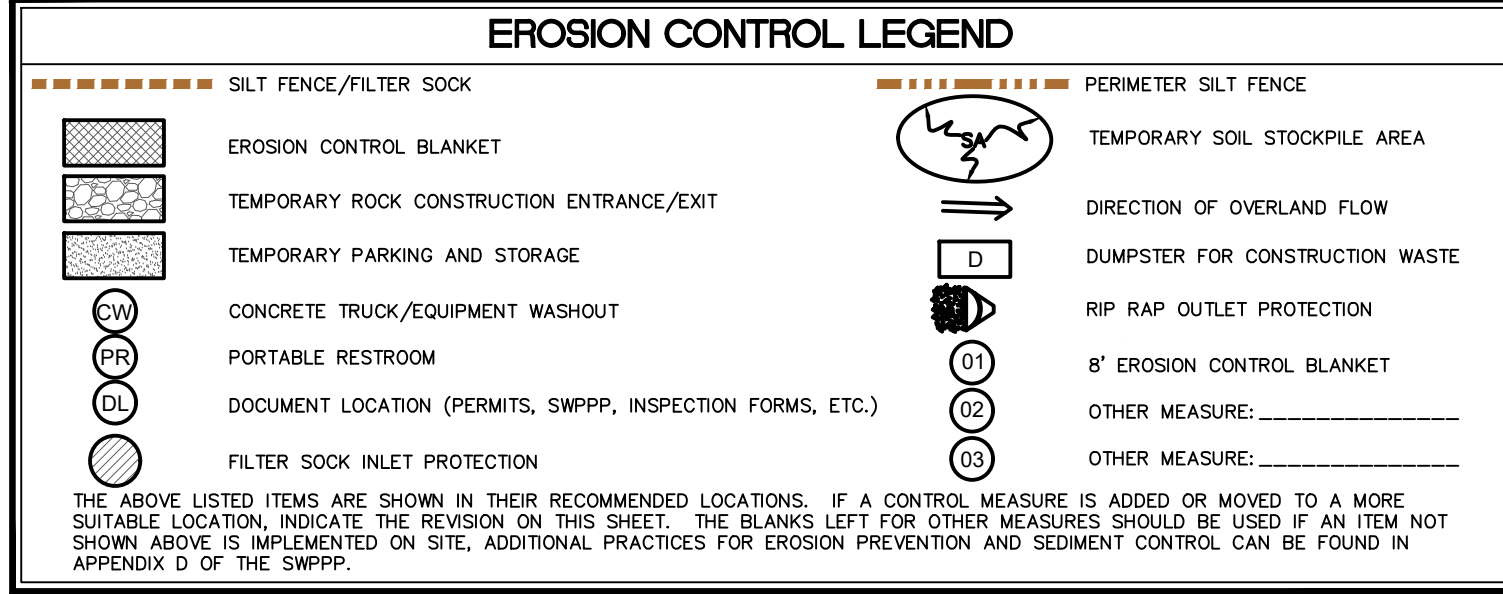
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SITE EROSION
CONTROL AND
SWPPP AND
RESTORATION
PLAN

HOOSIER CREEK
TRUNK SEWER
PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC.	
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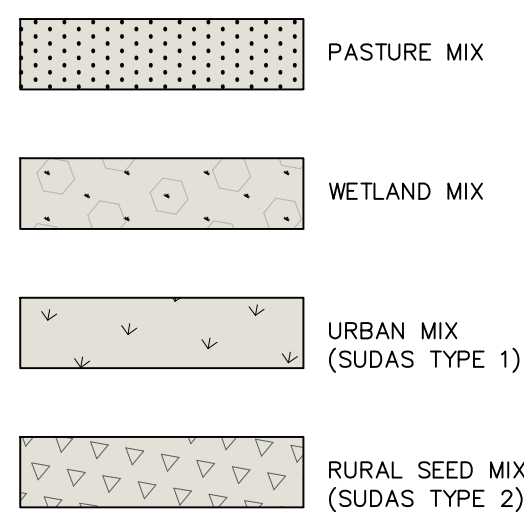
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SITE EROSION CONTROL AND SWPPP AND RESTORATION PLAN

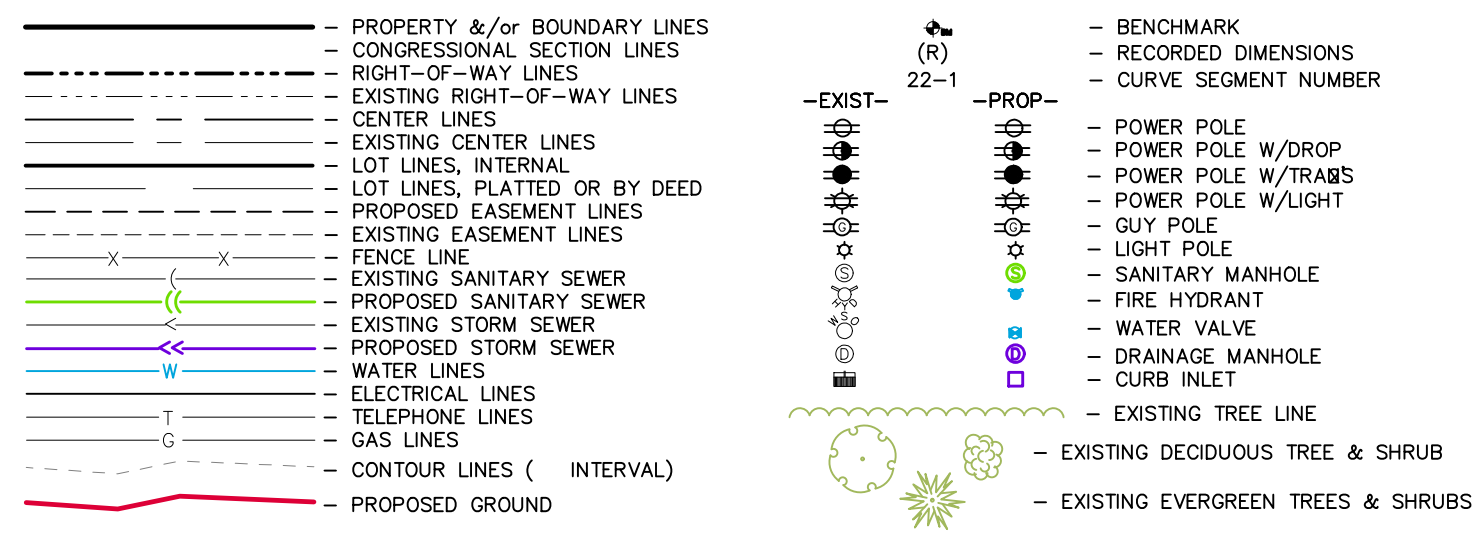
HOOSIER CREEK
TRUNK SEWER
PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC	
Date:	12/11/2020
Designed by: SBP	Field Book No:
Drawn by: JEB	Scale: 1" = 50'
Checked by: SBP	Sheet No:
Project No: IOWA CITY 5701-077	CG103

RESTORATION SEEDING LEGEND

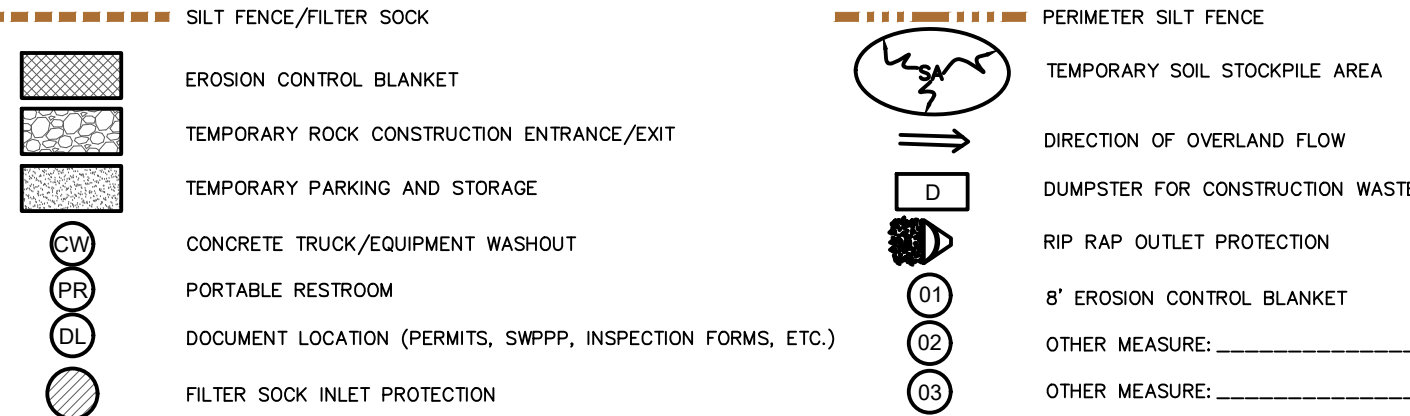


STANDARD LEGEND AND NOTES



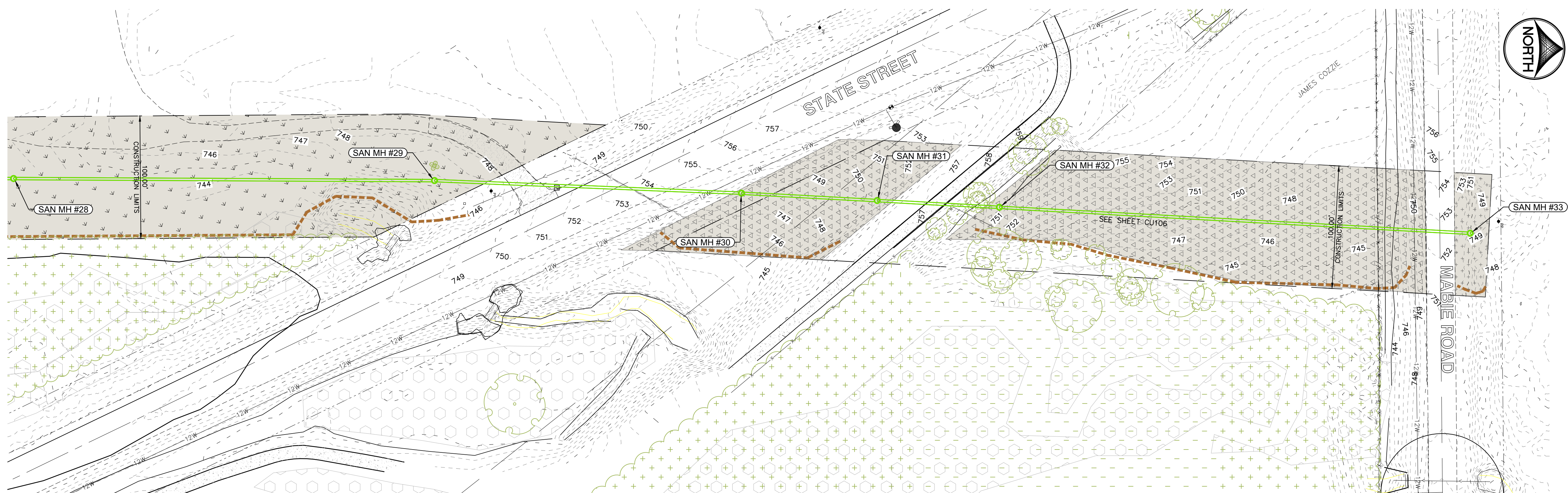
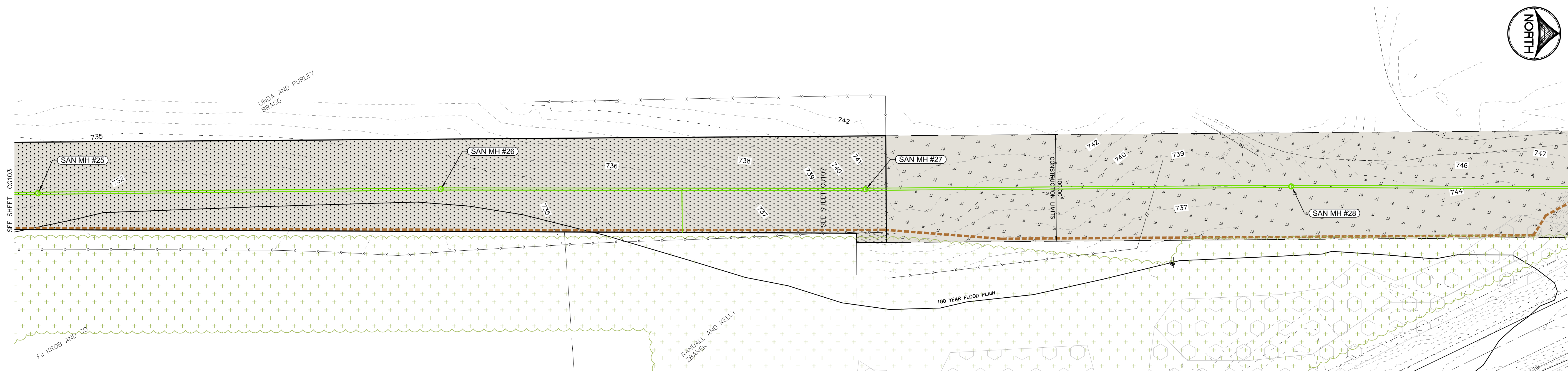
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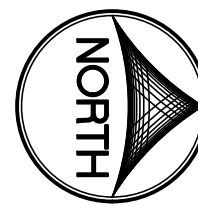
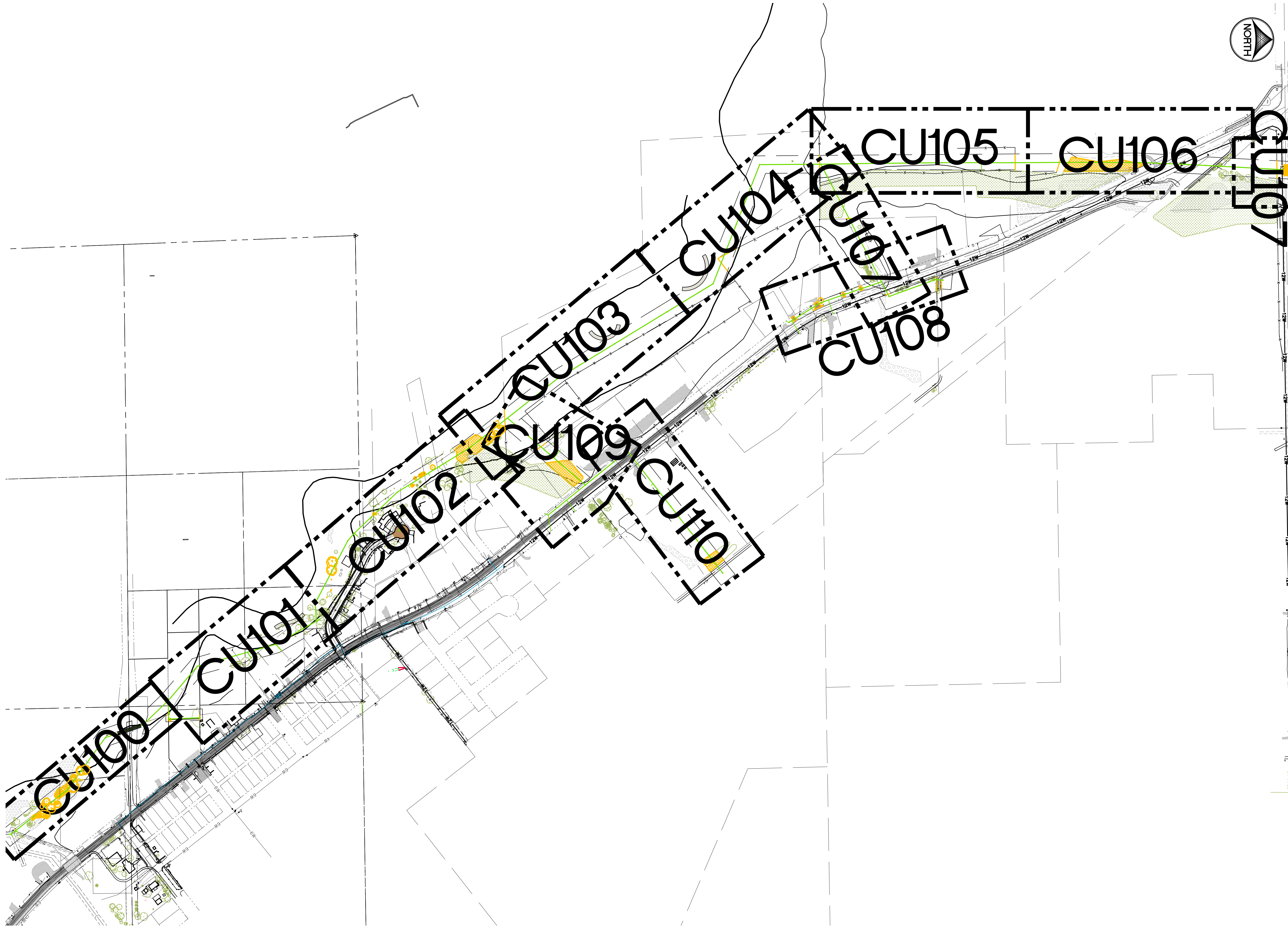
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SITE EROSION CONTROL AND SWPPP AND RESTORATION PLAN

HOOSIER CREEK TRUNK SEWER PROJECT
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LINN COUNTY
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MMS CONSULTANTS, INC.

Date: 12/11/2020
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IOWA CITY
5701-077



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OVERALL
SANITARY
SHEET PLAN

HOOSIER CREEK
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PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC.

Date:	12/11/2020
Designed by:	SBP
Drawn by:	JEB
Checked by:	SBP
Project No:	IOWA CITY
Field Book No:	
Scale:	H:1" = 50'; V:1" = 5'
Sheet No:	CU-OA
	5701-077

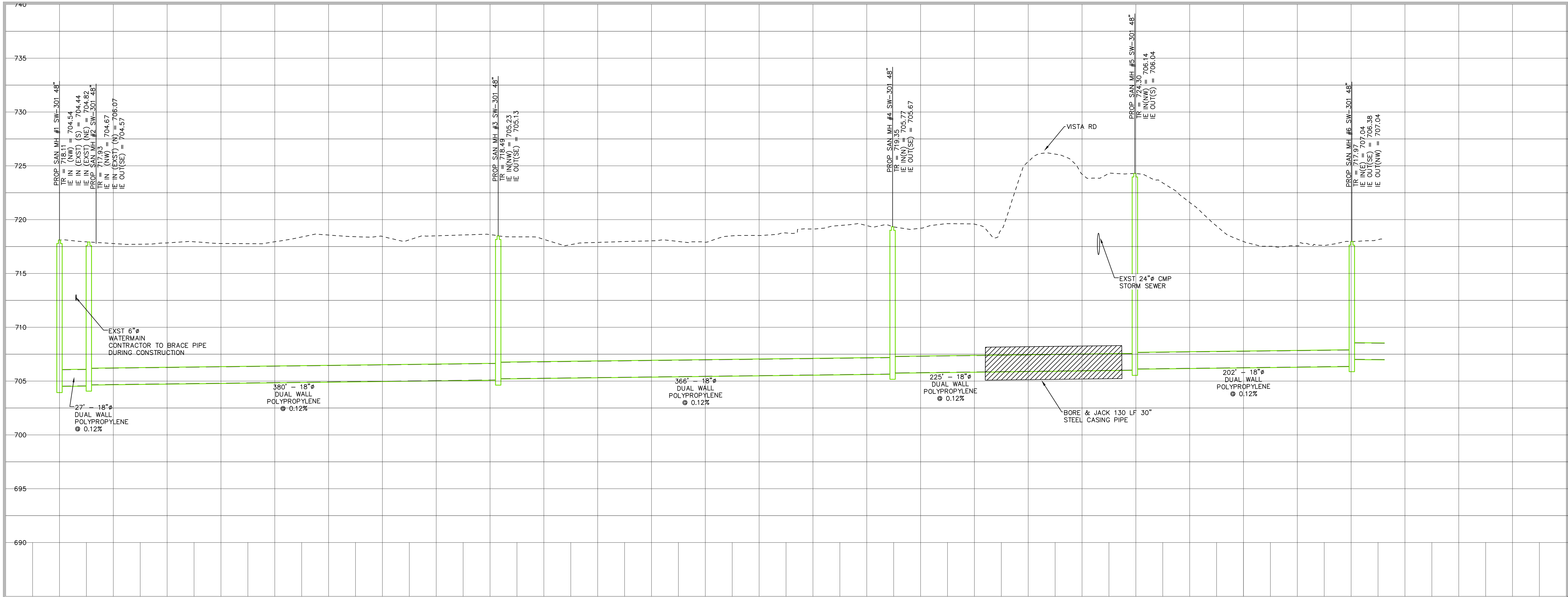
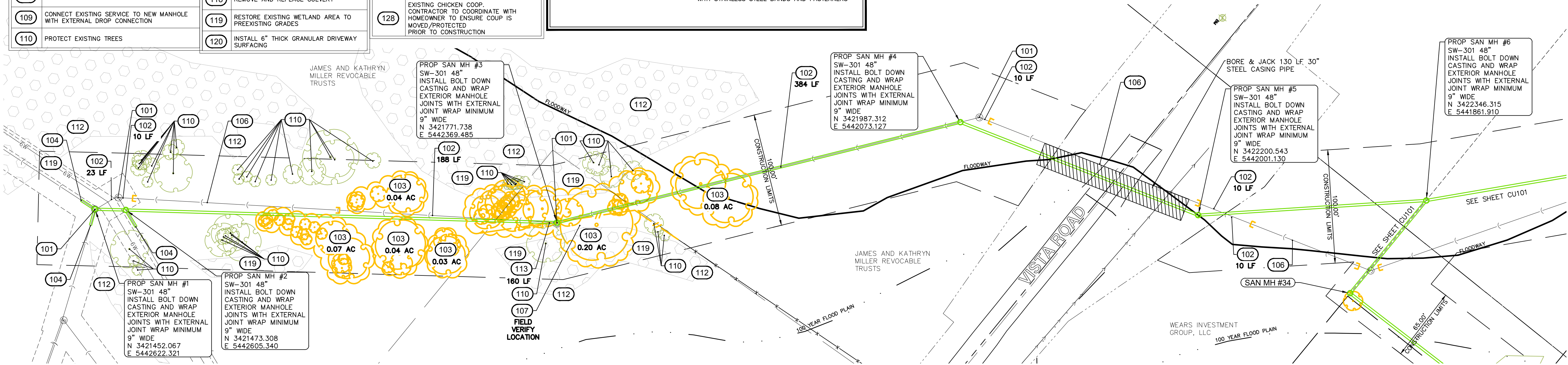
KEYNOTES	
NUMBER	KEYNOTE
101	REMOVE EXISTING SANITARY MANHOLE
102	REMOVE EXISTING SANITARY SEWER
103	CLEAR AND GRUB
104	CONNECT EXISTING SANITARY SEWER TO NEW MANHOLE
105	CONNECT EXISTING SANITARY SEWER TO NEW MANHOLE WITH EXTERNAL DROP CONNECTION
106	CAP EXISTING SEWER AND ABANDON IN PLACE
107	CONNECT EXISTING SERVICE TO NEW SANITARY MAIN
108	CONNECT EXISTING SERVICE TO NEW MANHOLE
109	CONNECT EXISTING SERVICE TO NEW MANHOLE WITH EXTERNAL DROP CONNECTION
110	PROTECT EXISTING TREES
KEYNOTES	
NUMBER	KEYNOTE
111	INSTALL 15' LONG 4" SANITARY SEWER SERVICE STUB
112	AVOID AND PROTECT EXISTING WETLANDS
113	REMOVE AND REPLACE FIELD FENCE
114	ABANDONED STORM SEWER, REMOVE AS REQUIRED FOR SEWER INSTALLATION
115	REMOVE STUMP
116	GRIND OR OTHERWISE REMOVE STUMP, PROTECT ADJACENT TREES
117	REMOVE AND REPLACE MAILBOX, SET UP TEMPORARY MAILBOX LOCATION DURING CONSTRUCTION.
118	REMOVE AND REPLACE CULVERT
119	RESTORE EXISTING WETLAND AREA TO PREEXISTING GRADES
120	INSTALL 6" THICK GRANULAR DRIVEWAY SURFACING

KEYNOTES	
NUMBER	KEYNOTE
121	REMOVE EXIST 2" HMA PAVING AND 4" ROCK BASE AND INSTALL 6" HMA PAVING (2'-2" BASE & 1'-2" SURFACE LIFTS) ON EXISTING ROCK BASE
122	CONNECT PROP SANITARY SEWER TO EXISTING SAN PIPE
123	REMOVE EXISTING LIFT STATION AND ELECTRIC COMPONENTS
124	INSTALL FIELD FENCE
125	INSTALL FIELD FENCE GATE (12' WIDE, 2'-6" GATES)
126	INSTALL 4" SANITARY SEWER SERVICE STUB
127	INSTALL 6" THICK GRANULAR SURFACING
128	EXISTING CHICKEN COOP, CONTRACTOR TO COORDINATE WITH HOMEOWNER TO ENSURE COUP IS MOVED/PROTECTED PRIOR TO CONSTRUCTION

BORING SPECIFICATIONS

CARRIER PIPE INSTALLED WITH CASING PIPE

LENGTH OF BORING	130 FEET
LENGTH OF CASING	130 FEET
CASING MATERIAL	STANDARD CARBON STEEL
CASING THICKNESS	0.312 INCH
CASING DIAMETER	30" NOMINAL
CARRIER PIPE	18"Ø DUAL WALL POLYPROPYLENE SANITARY SEWER
PIPE SPECIFICATIONS	ASTM F 2764
BELL OD	21.2 INCH
PIPE JOINT	PUSH ON
PIPE GASKET	ELASTOMETRIC
CARRIER PIPE SUPPORTS	IN ACCORDANCE WITH SUDAS SECTION 3020, 2.03
CASING PIPE END SEALS	MINIMUM 1/8 INCH THICKNESS MANUFACTURED SYNTHETIC RUBBER CASING END SEAL WITH STAINLESS STEEL BANDS AND FASTENERS



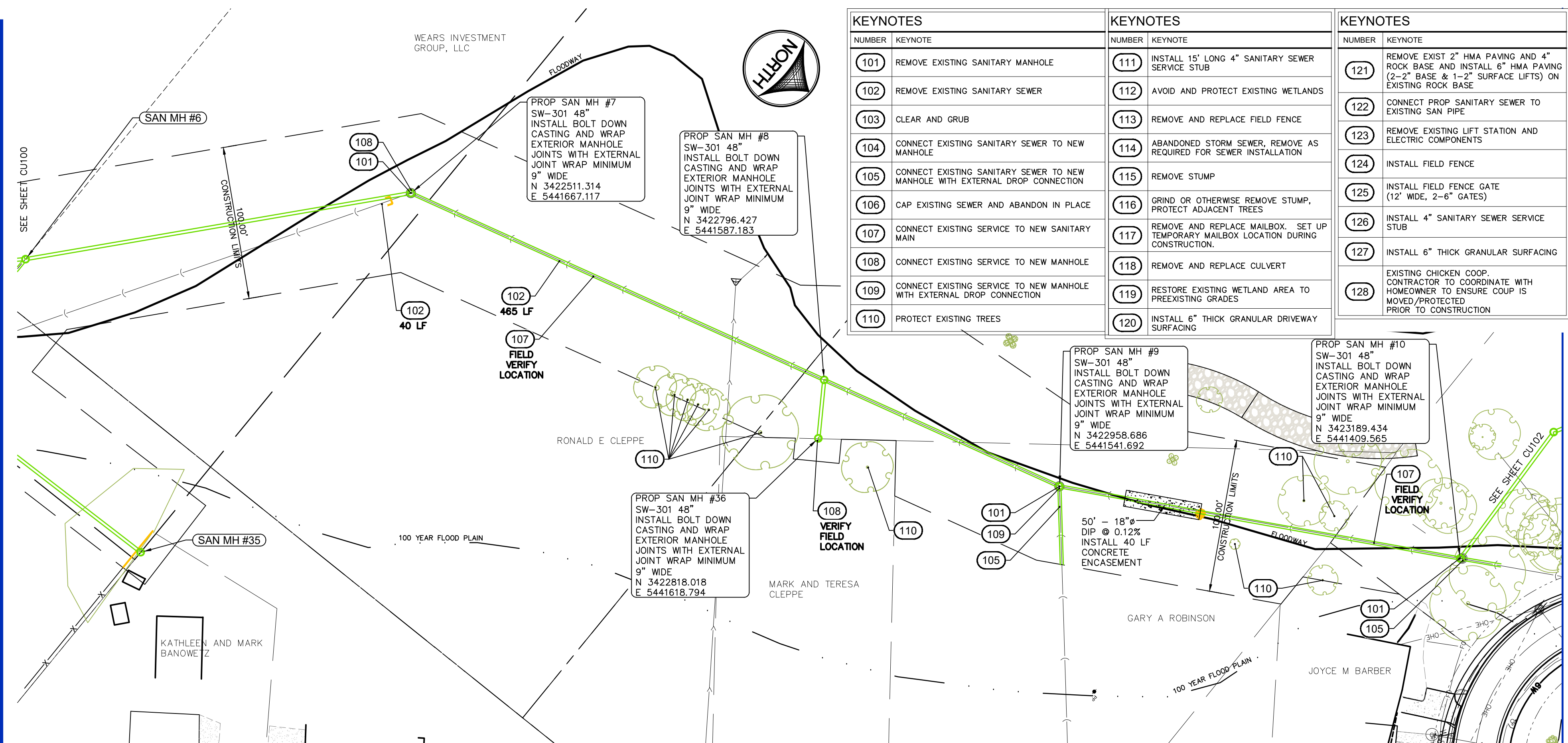
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Date	Revision
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SANITARY PLAN AND PROFILE

HOOSIER CREEK
TRUNK SEWER
PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC.	
Date:	12/11/2020
Designed by:	SBP
Drawn by:	JEB
Checked by:	SBP
Project No:	IOWA CITY
5701-077	CU100



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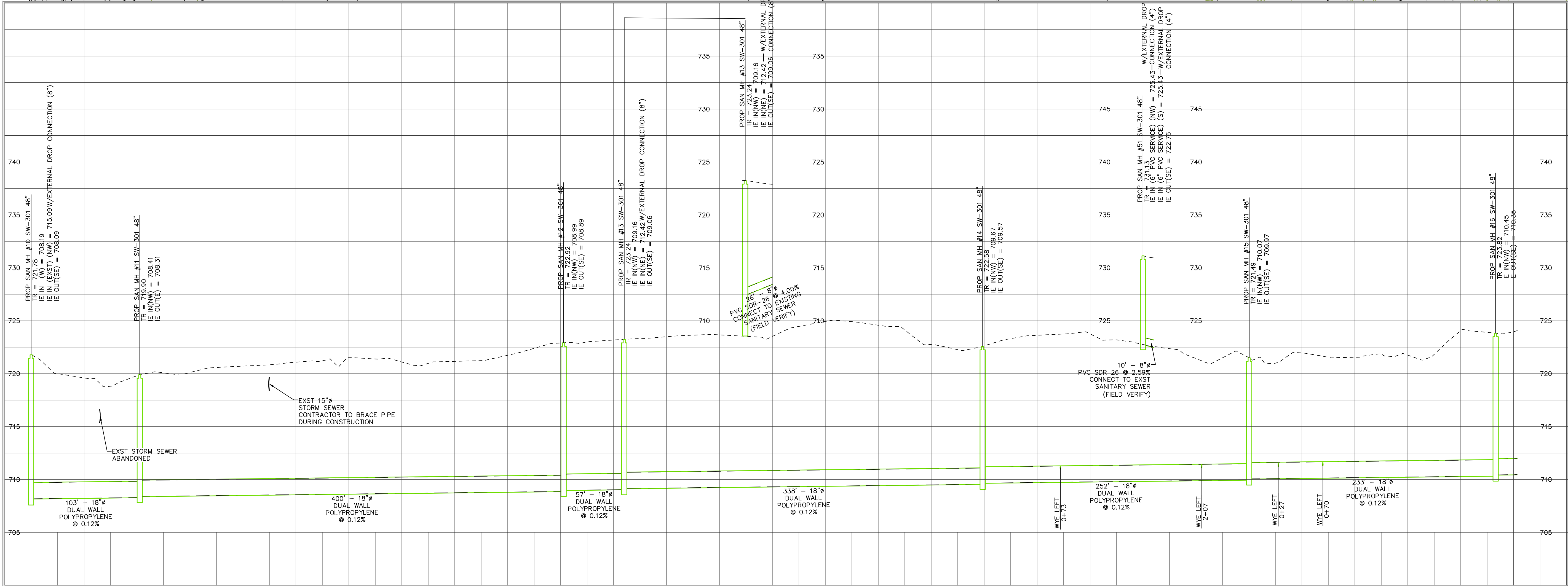
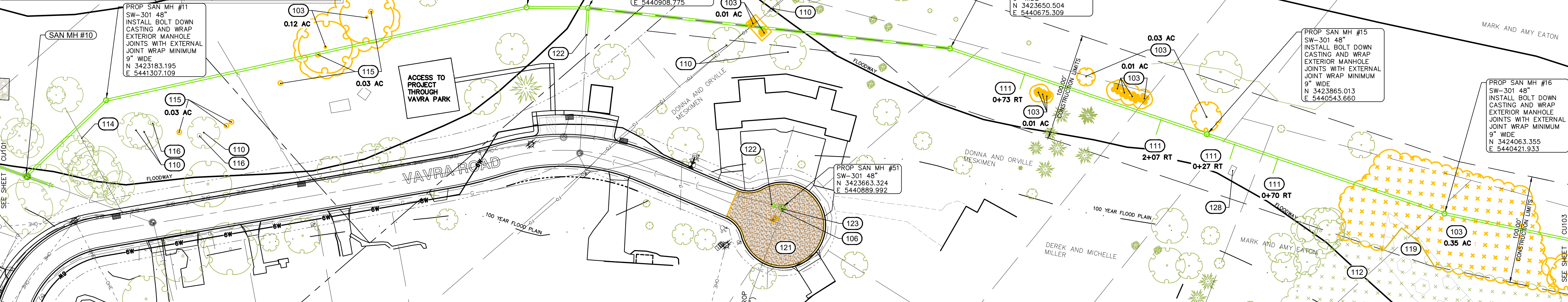
HOOSIER CREEK TRUNK SEWER PROJECT

CITY OF ELY
LINN COUNTY
IOWA

IOWA CITY | CUTTING-EDGE

5701-077

KEYNOTES		KEYNOTES		KEYNOTES	
NUMBER	KEYNOTE	NUMBER	KEYNOTE	NUMBER	KEYNOTE
101	REMOVE EXISTING SANITARY MANHOLE	111	INSTALL 15' LONG 4" SANITARY SEWER SERVICE STUB	121	REMOVE EXIST 2" HMA PAVING AND 4" ROCK BASE AND INSTALL 6" HMA PAVING (2'-2" BASE & 1'-2" SURFACE LIFTS) ON EXISTING ROCK BASE
102	REMOVE EXISTING SANITARY SEWER	112	AVOID AND PROTECT EXISTING WETLANDS	122	CONNECT PROP SANITARY SEWER TO EXISTING SAN PIPE
103	CLEAR AND GRUB	113	REMOVE AND REPLACE FIELD FENCE	123	REMOVE EXISTING LIFT STATION AND ELECTRIC COMPONENTS
104	CONNECT EXISTING SANITARY SEWER TO NEW MANHOLE	114	ABANDONED STORM SEWER, REMOVE AS REQUIRED FOR SEWER INSTALLATION	124	INSTALL FIELD FENCE
105	CONNECT EXISTING SANITARY SEWER TO NEW MANHOLE WITH EXTERNAL DROP CONNECTION	115	REMOVE STUMP	125	INSTALL FIELD FENCE GATE (12' WIDE, 2'-6" GATES)
106	CAP EXISTING SEWER AND ABANDON IN PLACE	116	GRIND OR OTHERWISE REMOVE STUMP, PROTECT ADJACENT TREES	126	INSTALL 4" SANITARY SEWER SERVICE STUB
107	CONNECT EXISTING SERVICE TO NEW SANITARY MAIN	117	REMOVE AND REPLACE MAILBOX, SET UP TEMPORARY MAILBOX LOCATION DURING CONSTRUCTION.	127	INSTALL 6" THICK GRANULAR SURFACING
108	CONNECT EXISTING SERVICE TO NEW MANHOLE	118	REMOVE AND REPLACE CULVERT	128	EXISTING CHICKEN COOP, CONTRACTOR TO COORDINATE WITH HOMEOWNER TO ENSURE COUP IS MOVED/PROTECTED PRIOR TO CONSTRUCTION
109	CONNECT EXISTING SERVICE TO NEW MANHOLE WITH EXTERNAL DROP CONNECTION	119	RESTORE EXISTING WETLAND AREA TO PREEXISTING GRADES		
110	PROTECT EXISTING TREES	120	INSTALL 6" THICK GRANULAR DRIVEWAY SURFACING		



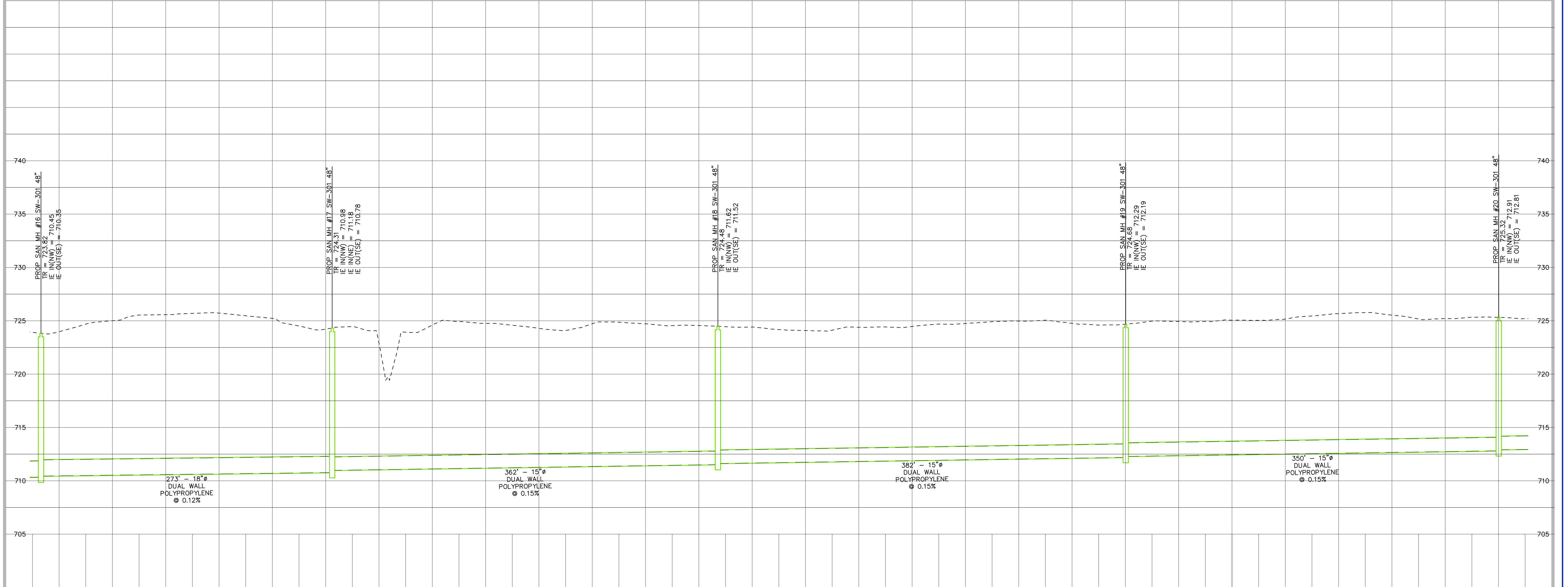
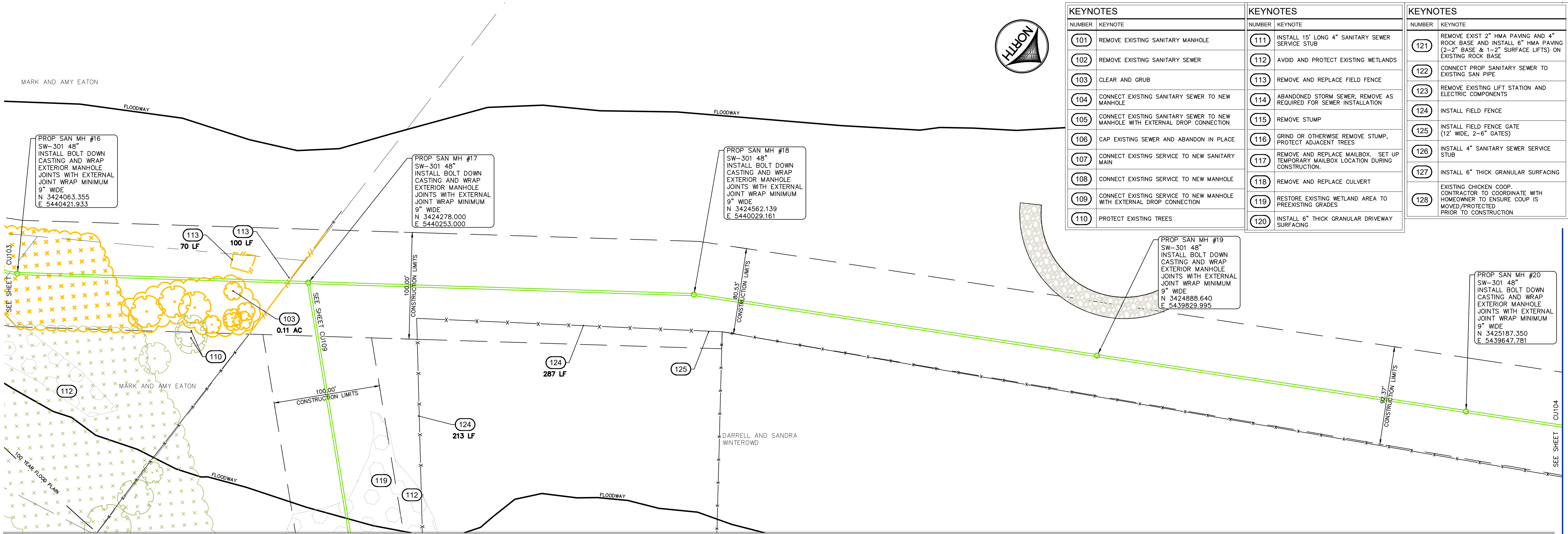
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SANITARY PLAN AND PROFILE

HOOSIER CREEK
TRUNK SEWER
PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC.
Date: 12/11/2020
Designed by: SBP
Drawn by: JEB
Checked by: SBP
Project No: IOWA CITY
5701-077
Field Book No:
Scale: H:1" = 50'; V:1" = 5'
Sheet No: CU102



KEYNOTES		KEYNOTES		KEYNOTES	
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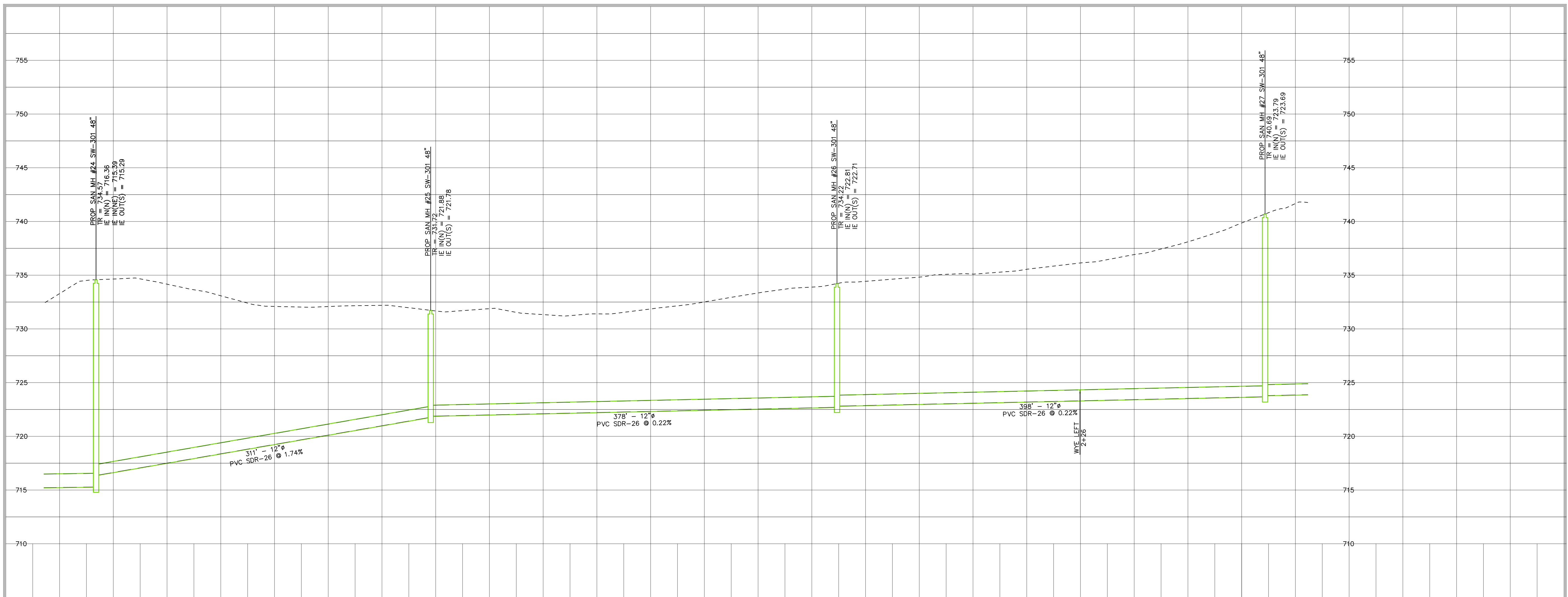
HOOSIER CREEK TRUNK SEWER PROJECT

CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC.	
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5701-077	CU103



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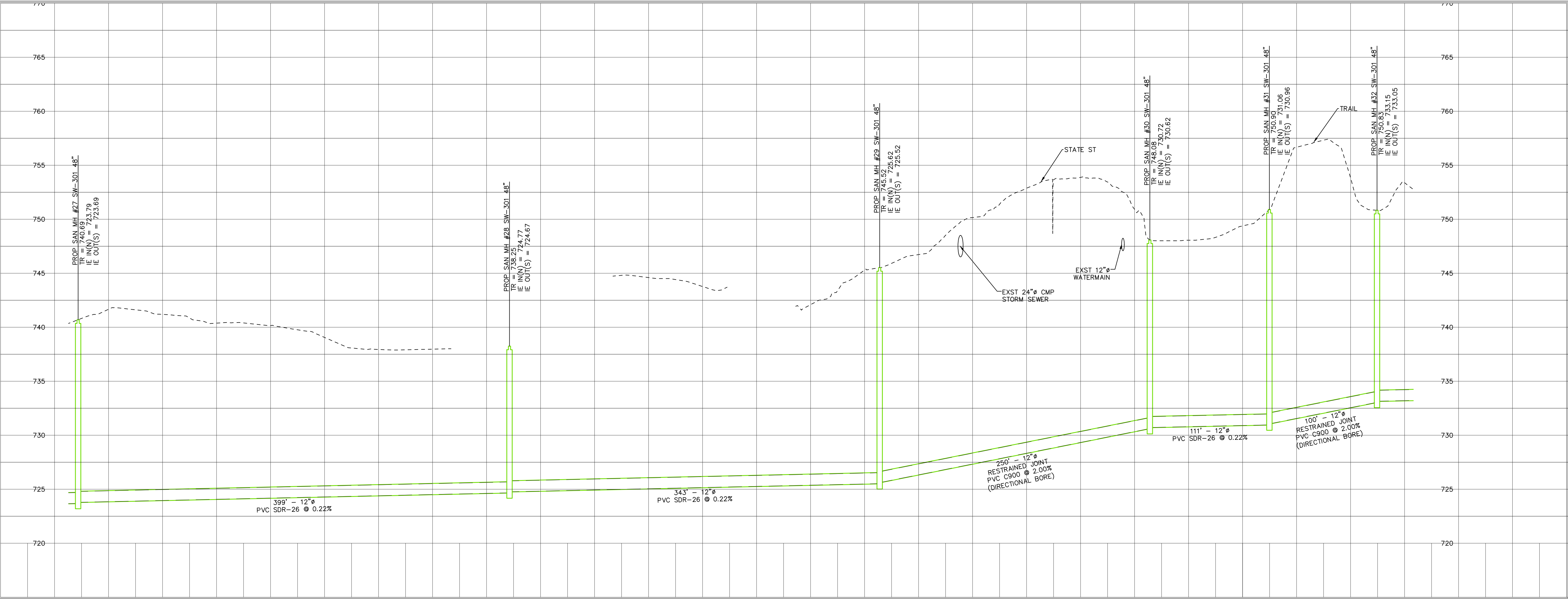
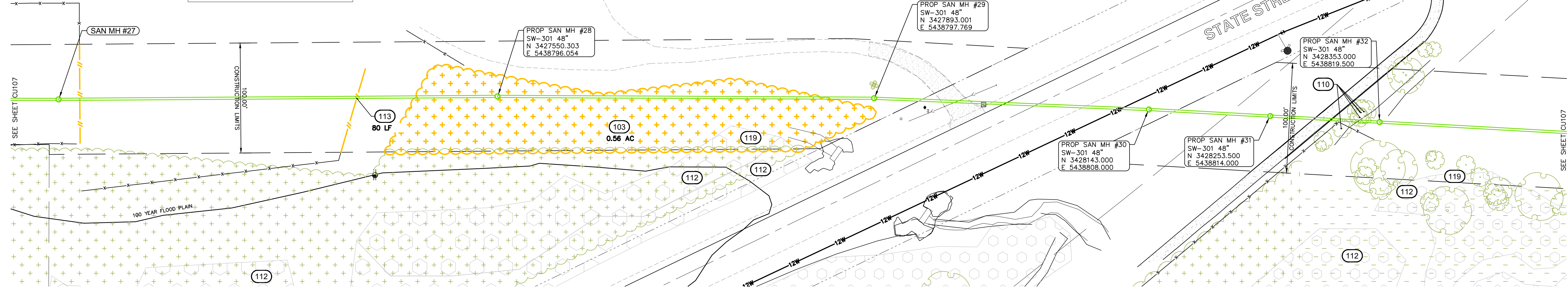


SANITARY PLAN AND PROFILE

HOOSIER CREEK
TRUNK SEWER
PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC	
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Project No:	
IOWA CITY	CU105
5701-077	

KEYNOTES		KEYNOTES		KEYNOTES	
NUMBER	KEYNOTE	NUMBER	KEYNOTE	NUMBER	KEYNOTE
(101)	REMOVE EXISTING SANITARY MANHOLE	(111)	INSTALL 15' LONG 4" SANITARY SEWER SERVICE STUB	(121)	REMOVE EXIST 2" HMA PAVING AND 4" ROCK BASE AND INSTALL 6" HMA PAVING (2'-2" BASE & 1'-2" SURFACE LIFTS) ON EXISTING ROCK BASE
(102)	REMOVE EXISTING SANITARY SEWER	(112)	AVOID AND PROTECT EXISTING WETLANDS	(122)	CONNECT PROP SANITARY SEWER TO EXISTING SAN PIPE
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(104)	CONNECT EXISTING SANITARY SEWER TO NEW MANHOLE	(114)	ABANDONED STORM SEWER, REMOVE AS REQUIRED FOR SEWER INSTALLATION	(124)	INSTALL FIELD FENCE
(105)	CONNECT EXISTING SANITARY SEWER TO NEW MANHOLE WITH EXTERNAL DROP CONNECTION	(115)	REMOVE STUMP	(125)	INSTALL FIELD FENCE GATE (12' WIDE, 2-6" GATES)
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(107)	CONNECT EXISTING SERVICE TO NEW SANITARY MAIN	(117)	REMOVE AND REPLACE MAILBOX, SET UP TEMPORARY MAILBOX LOCATION DURING CONSTRUCTION	(127)	INSTALL 6" THICK GRANULAR SURFACING
(108)	CONNECT EXISTING SERVICE TO NEW MANHOLE	(118)	REMOVE AND REPLACE CULVERT	(128)	EXISTING CHICKEN COOP, CONTRACTOR TO COORDINATE WITH HOMEOWNER TO ENSURE COUP IS MOVED/PROTECTED PRIOR TO CONSTRUCTION
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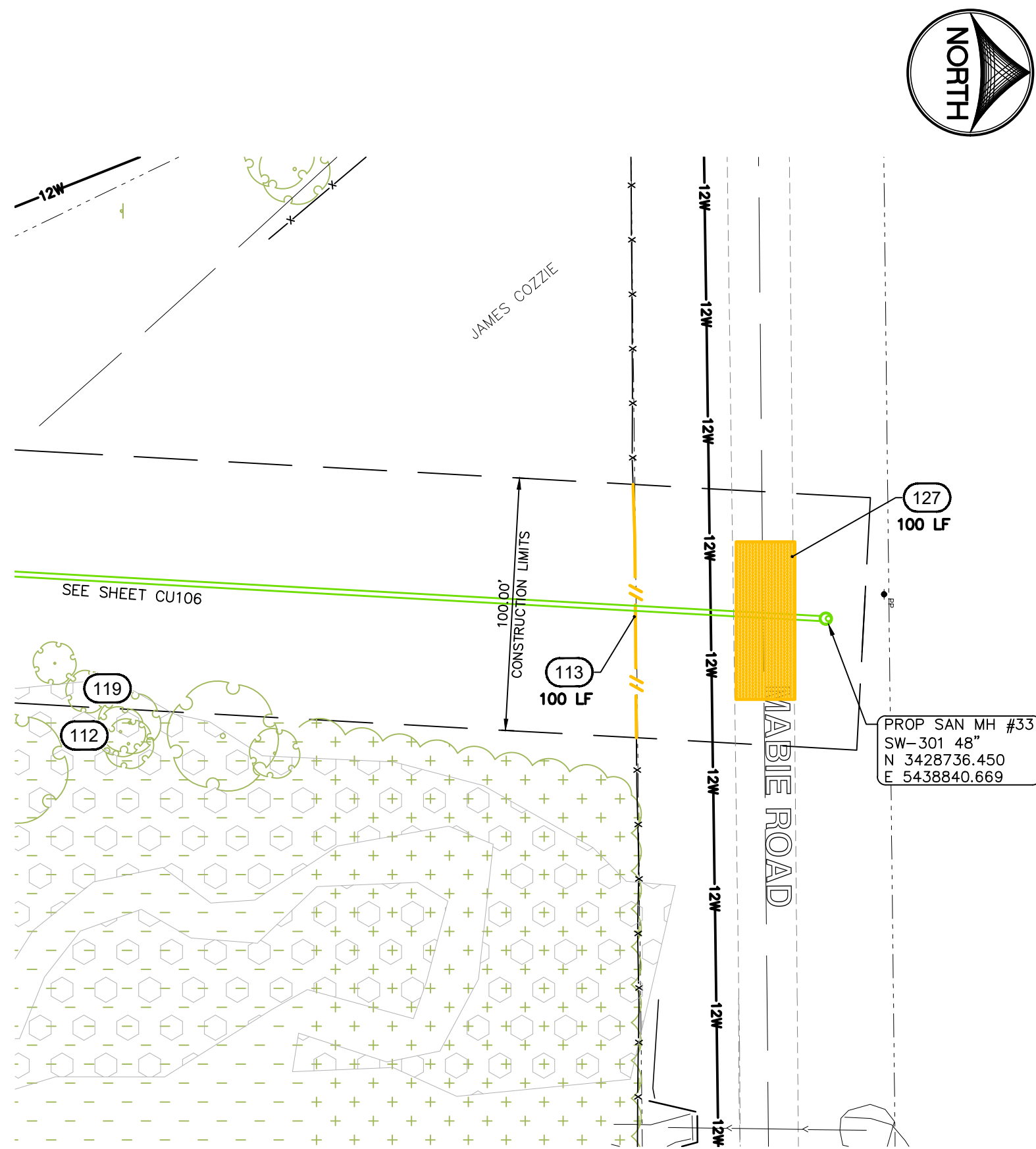
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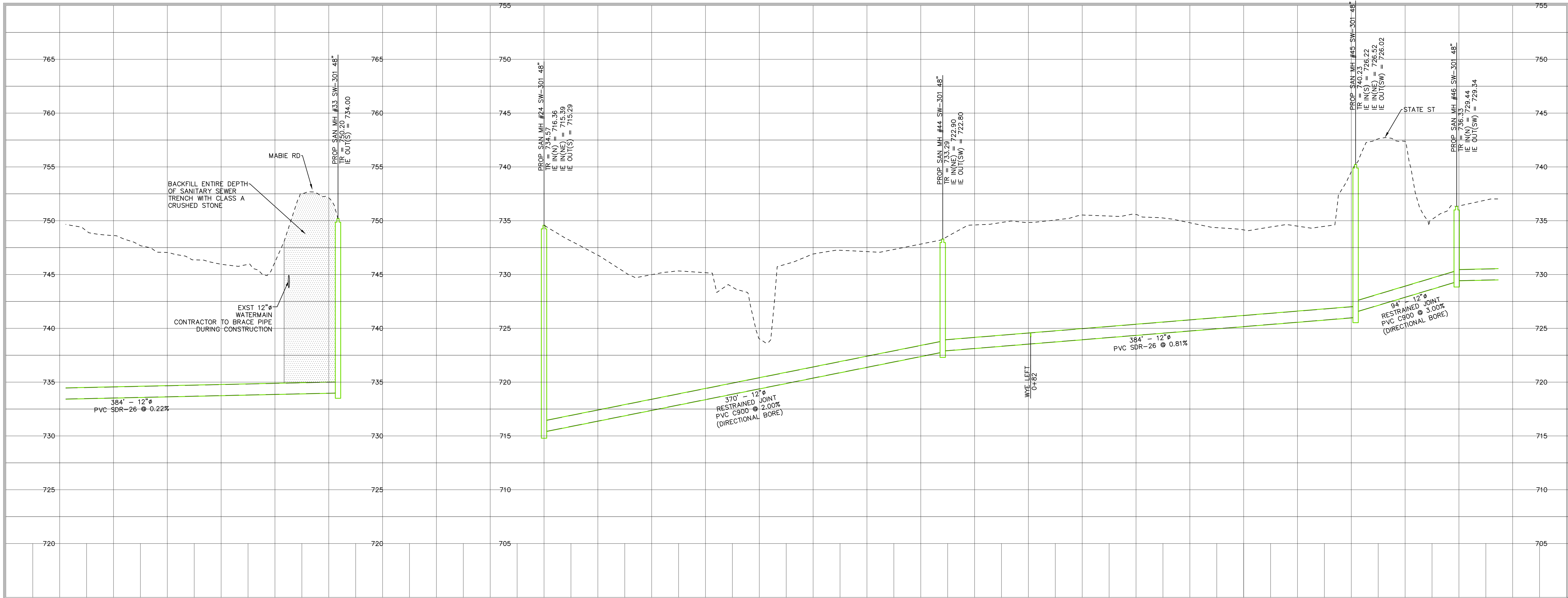
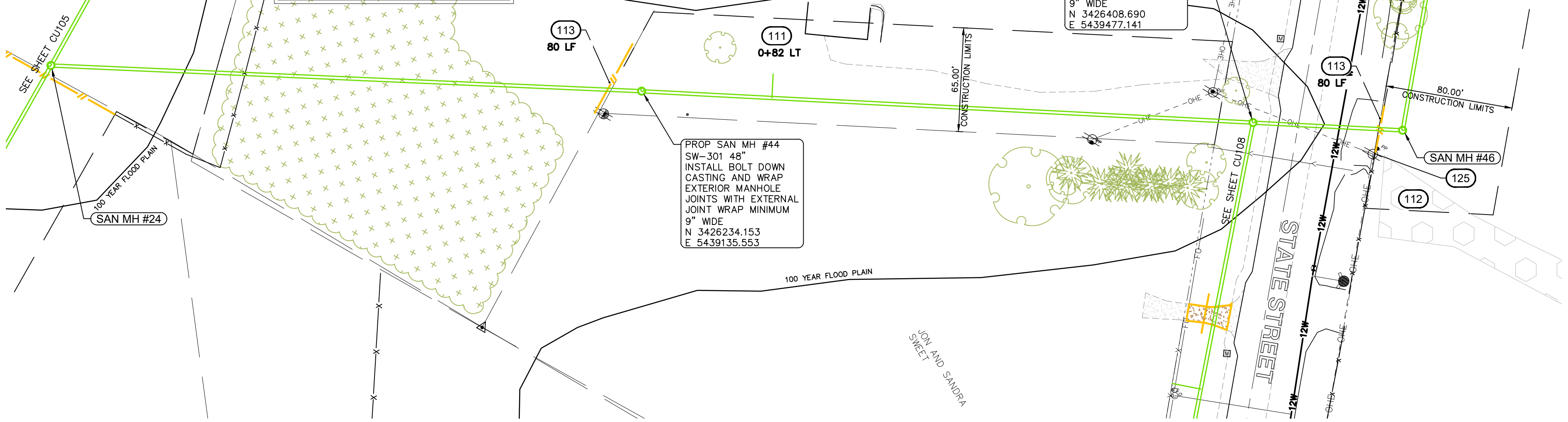
SANITARY PLAN AND PROFILE

HOOSIER CREEK
TRUNK SEWER
PROJECT
CITY OF ELY
LINN COUNTY
IOWA

MMS CONSULTANTS, INC.	
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5701-077	CU106



KEYNOTES		KEYNOTES		KEYNOTES	
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108	CONNECT EXISTING SERVICE TO NEW MANHOLE	118	REMOVE AND REPLACE CULVERT	128	EXISTING CHICKEN COOP. CONTRACTOR TO COORDINATE WITH HOMEOWNER TO ENSURE COUP IS MOVED/PROTECTED PRIOR TO CONSTRUCTION
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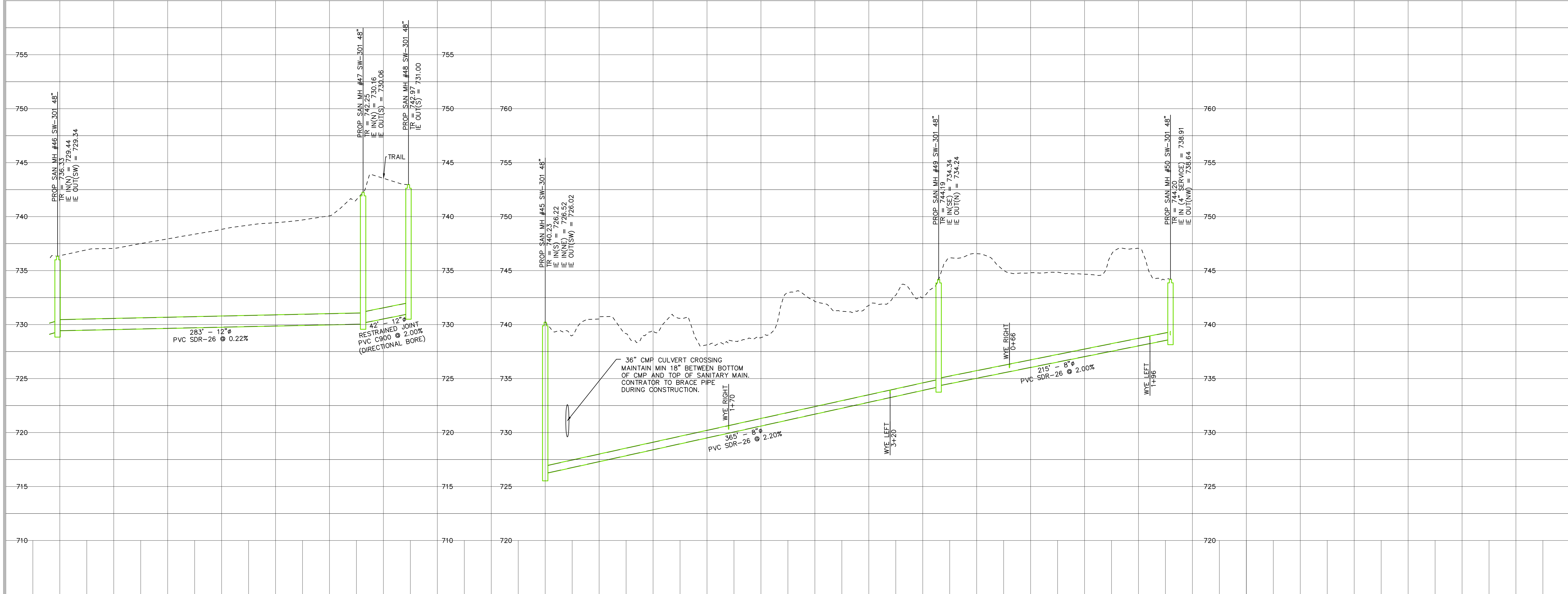
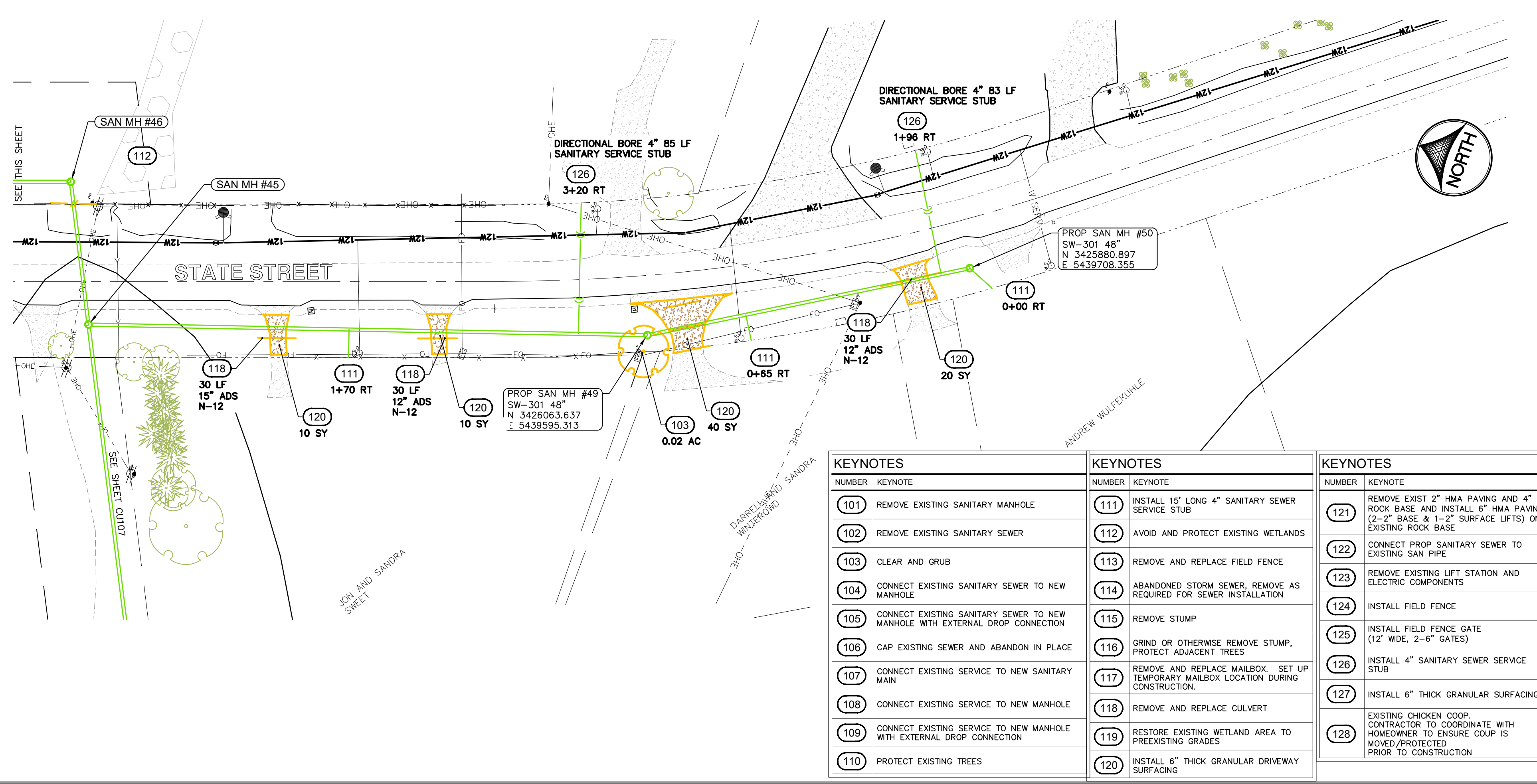
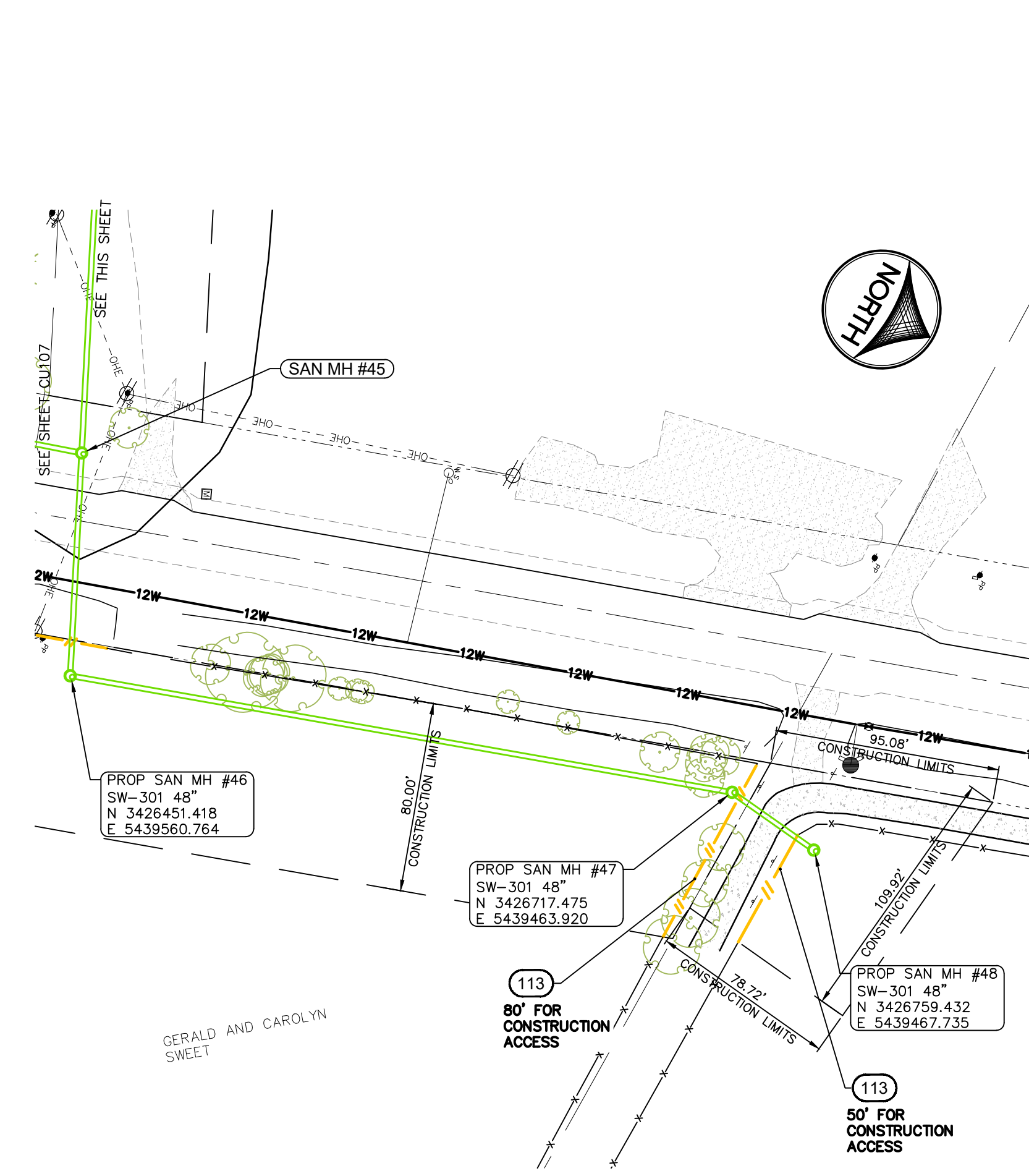
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SANITARY PLAN AND PROFILE

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TRUNK SEWER
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CITY OF ELY
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Project No: CU107
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5701-077





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SANITARY PLAN AND PROFILE

HOOSIER CREEK TRUNK SEWER PROJECT
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5701-077	CU108

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Sheet No:

SEE SHEET C103

SAN MH #17

113
80 LF

112

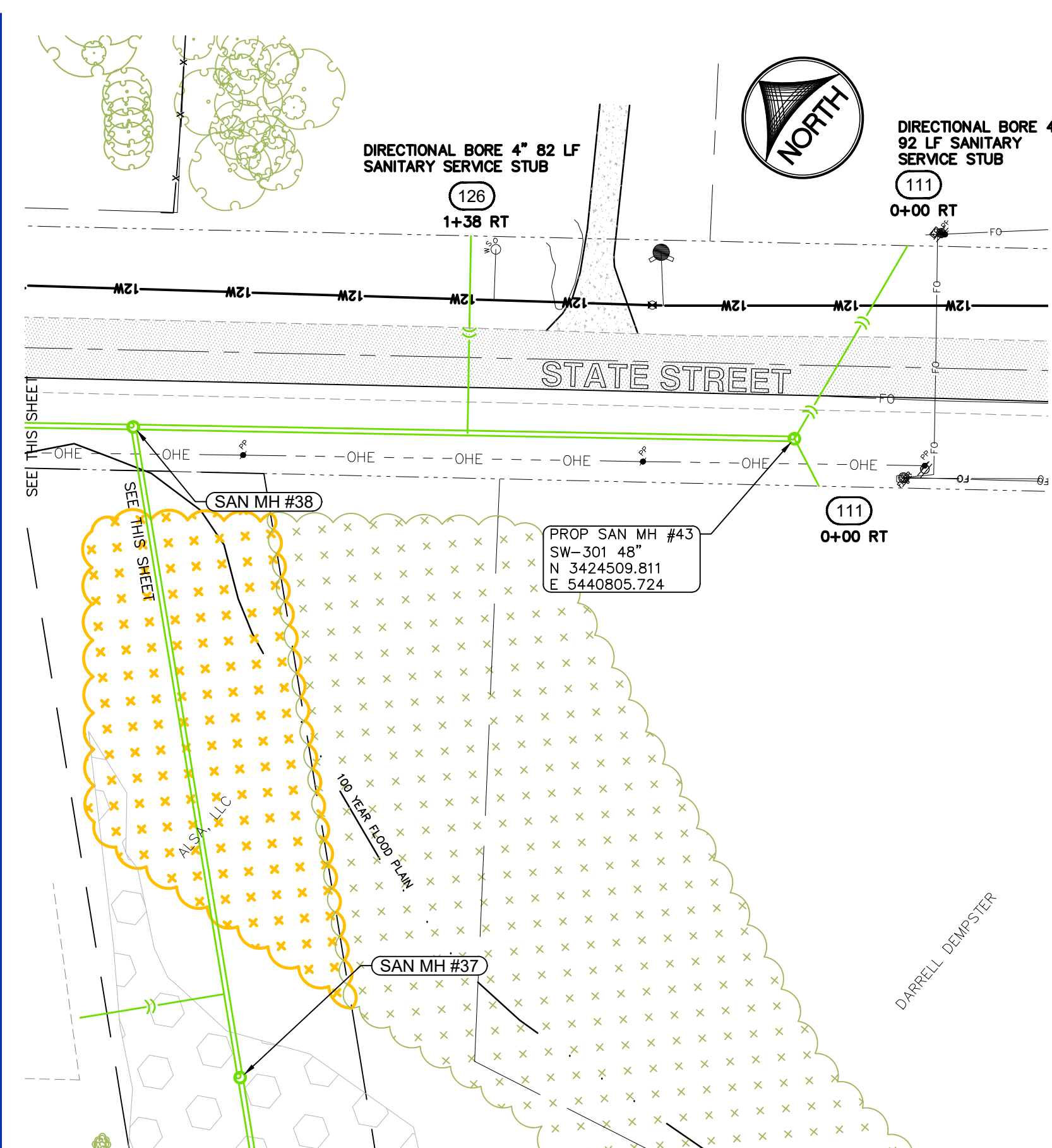
126
0+35 LT
82 LF

CONSTRUCTION LIMITS

100' YEAR FLOOD PLAIN

PROPOSED SAN MH #37
SW-301 48"
INSTALL BOLT DOWN
CASTING AND WRAP
EXTERIOR MANHOLE
JOINTS WITH EXTERNAL
JOINT WRAP MINIMUM
9" WIDE
N 3424515.500
E 5440457.000

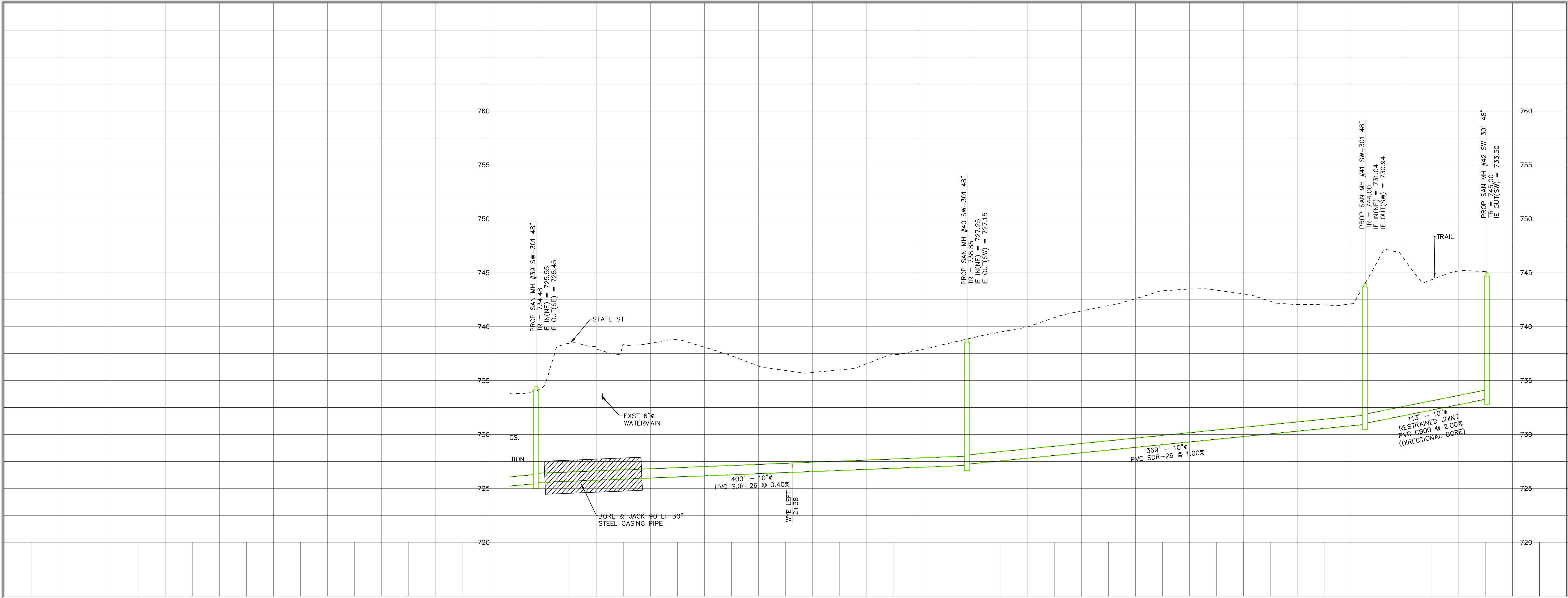
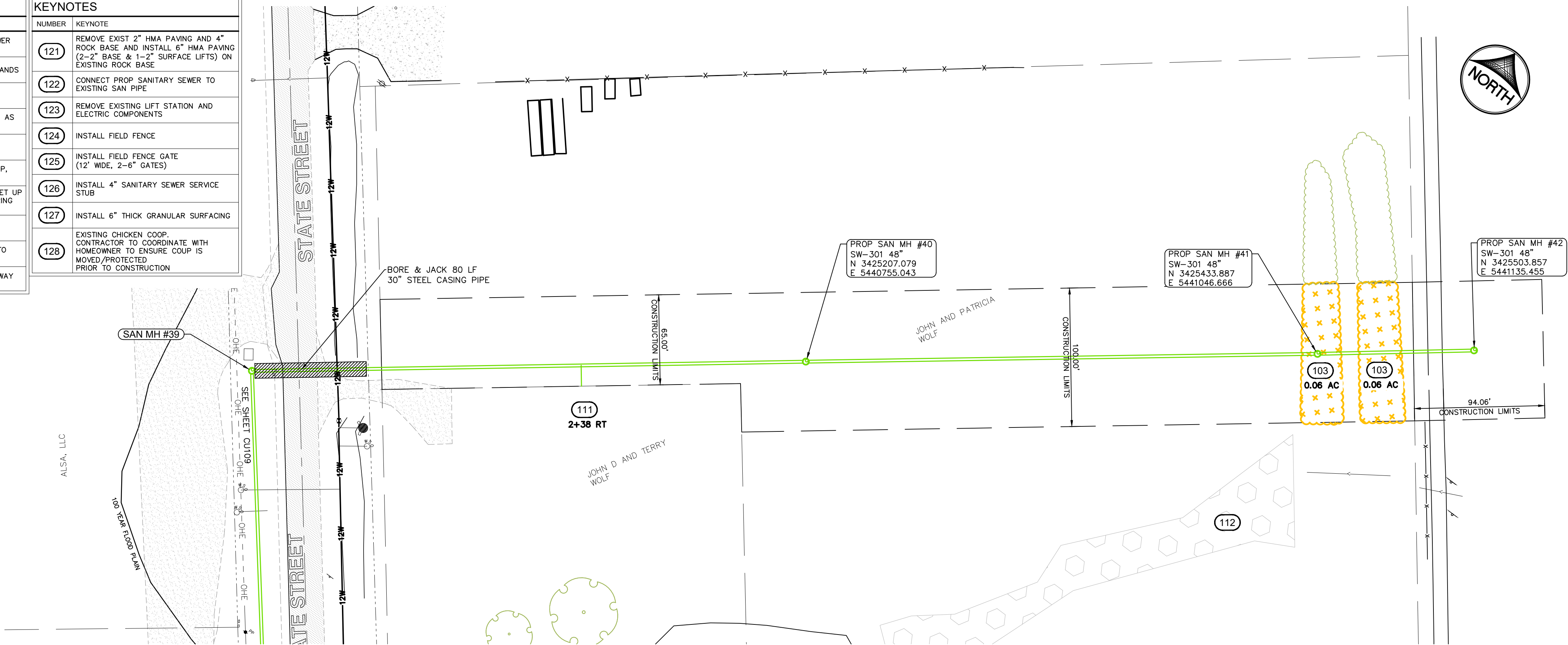
MARK AND AMY EATON



KEYNOTES		KEYNOTES	
NUMBER	KEYNOTE	NUMBER	KEYNOTE
(101)	REMOVE EXISTING SANITARY MANHOLE	(111)	INSTALL 15' LONG 4" SANITARY SEWER SERVICE STUB
(102)	REMOVE EXISTING SANITARY SEWER	(112)	AVOID AND PROTECT EXISTING WETLANDS
(103)	CLEAR AND GRUB	(113)	REMOVE AND REPLACE FIELD FENCE
(104)	CONNECT EXISTING SANITARY SEWER TO NEW MANHOLE	(114)	ABANDONED STORM SEWER, REMOVE AS REQUIRED FOR SEWER INSTALLATION
(105)	CONNECT EXISTING SANITARY SEWER TO NEW MANHOLE WITH EXTERNAL DROP CONNECTION	(115)	REMOVE STUMP
(106)	CAP EXISTING SEWER AND ABANDON IN PLACE	(116)	GRIND OR OTHERWISE REMOVE STUMP, PROTECT ADJACENT TREES
(107)	CONNECT EXISTING SERVICE TO NEW SANITARY MAIN	(117)	REMOVE AND REPLACE MAILBOX, SET UP TEMPORARY MAILBOX LOCATION DURING CONSTRUCTION.
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(109)	CONNECT EXISTING SERVICE TO NEW MANHOLE WITH EXTERNAL DROP CONNECTION	(119)	RESTORE EXISTING WETLAND AREA TO PREEXISTING GRADES
(110)	PROTECT EXISTING TREES	(120)	INSTALL 6" THICK GRANULAR DRIVEWAY SURFACING

KEYNOTES	
NUMBER	KEYNOTE
(121)	REMOVE EXIST 2" HMA PAVING AND 4" ROCK BASE AND INSTALL 6" HMA PAVING (2-2" BASE & 1-2" SURFACE LIFTS) ON EXISTING ROCK BASE
(122)	CONNECT PROP. SANITARY SEWER TO EXISTING SAN PIPE
(123)	REMOVE EXISTING LIFT STATION AND ELECTRIC COMPONENTS
(124)	INSTALL FIELD FENCE
(125)	INSTALL FIELD FENCE GATE (12' WIDE, 2-6" GATES)
(126)	INSTALL 4" SANITARY SEWER SERVICE STUB
(127)	INSTALL 6" THICK GRANULAR SURFACING
(128)	EXISTING CHICKEN COOP. CONTRACTOR TO COORDINATE WITH HOMEOWNER TO ENSURE COUP IS MOVED/PROTECTED PRIOR TO CONSTRUCTION

BORING SPECIFICATIONS	
CARRIER PIPE INSTALLED WITH CASING PIPE	
LENGTH OF BORING	80 FEET
LENGTH OF CASING	80 FEET
CASING MATERIAL	STANDARD CARBON STEEL
CASING THICKNESS	0.25 INCH
CASING DIAMETER	18" NOMINAL
CARRIER PIPE	10"Ø PVC SDR26 SANITARY SEWER
PIPE SPECIFICATIONS	ASTM 3034
BELL OD	11.7 INCH
PIPE JOINT	PUSH ON
PIPE GASKET	ELASTOMETRIC
CARRIER PIPE SUPPORTS	IN ACCORDANCE WITH SDAS SECTION 3020, 2.03
CASING PIPE END SEALS	MINIMUM 1/8 INCH THICKNESS MANUFACTURED SYNTHETIC RUBBER CASING END SEAL WITH STAINLESS STEEL BANDS AND FASTENERS



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MMS CONSULTANTS, INC.	
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5701-077	CU110

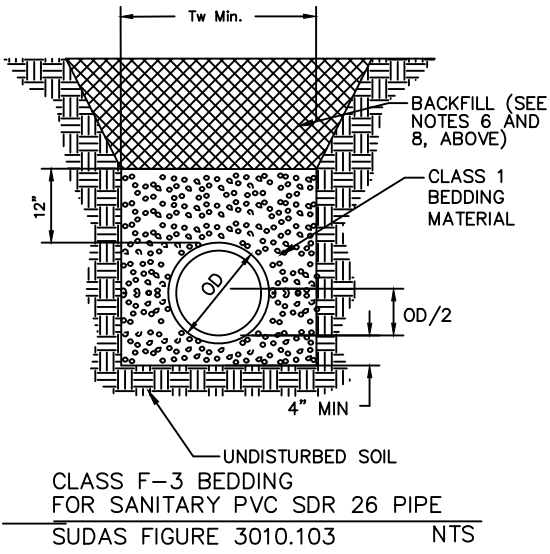
SANITARY SEWER CONSTRUCTION NOTES

ALL SANITARY SEWER MANHOLE LIDS SHALL HAVE THE WORDS 'SANITARY SEWER' CAST IN THE LID

- SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AS PREPARED BY MMS CONSULTANTS, INC. CONSTRUCTION SHALL ALSO CONFORM TO THE IOWA STATEWIDE URBAN DESIGN AND SPECIFICATIONS (SUDAS) MANUAL, AND TO THE CITY OF ELY STANDARDS AND APPROVED MANUFACTURERS/MODELS.
 - ALL TRENCH EXCAVATIONS SHALL BE COMPLETED IN ACCORDANCE WITH SUDAS SPECIFICATION SECTION 3010.
 - CONTRACTOR SHALL PROVIDE CLASS 1 CRUSHED STONE ENCASEMENT BEDDING ACCORDING TO SUDAS SPECIFICATION 3010.2.02.A FOR ALL SANITARY SEWER UNLESS NOTED OTHERWISE ON THE PLANS.
 - SANITARY SEWERS TO BE PVC SDR 26 PIPE (SUDAS 4010.2.01.E) OR DUAL WALL POLYPROPYLENE (SUDAS 4010.2.01.J) UNLESS NOTED OTHERWISE. SANITARY SEWERS INSTALLED BY DIRECTIONAL BORE SHALL BE RESTRAINED JOINT PVC C-800 PIPE (SUDAS 5010.2.01.A). SANITARY PIPE INSTALLED IN CONCRETE ENCASEMENT SHALL BE DUCTILE IRON PIPE (SUDAS 4010.2.01.G). SANITARY SEWER SERVICE LINES SHALL BE PVC, SDR 23.5 WITH GASKETED JOINTS (SUDAS 4010.2.04.C).
 - CONTRACTOR TO PROVIDE CLOW "BAND-SEAL" COUPLINGS FOR DISSIMILAR PIPE CONNECTIONS.
 - SANITARY SEWER TRENCHES SHALL BE BACKFILLED WITH EITHER OF THE FOLLOWING COMPACTED TO 95% STANDARD PROCTOR DENSITY:
 - SUITABLE EXCAVATED MATERIAL. IF EXCAVATED MATERIAL IS NOT SUITABLE, THEN
 - CRUSHED STONE AS SPECIFIED FOR GRANULAR TRENCH BACKFILL SHALL BE USED.*REFER TO SUDAS SPECIFICATION 3010.2.01 FOR UNSUITABLE MATERIAL.*
GRANULAR TRENCH BACKFILL SHALL NOT BE USED WITHOUT PRIOR APPROVAL OF THE ENGINEER.
 - ALL SANITARY SEWER SERVICE LINES CROSSING STREET RIGHT-OF-WAY SHALL DIRECTIONAL BORED.
 - SANITARY SEWER TRENCHES SHALL BE CLASS A CRUSHED STONE. COMPACT TO 95% STANDARD PROCTOR DENSITY.
 - ALL SANITARY SEWER SERVICE LINES SHALL BE EXTENDED:
 - TO THE EASEMENT LINE FOR THOSE LOCATIONS WHERE THE SEWER IS LOCATED OUTSIDE OF THE PUBLIC ROW
 - TO THE ROW LINE FOR THOSE LOCATIONS WHERE THE SEWER IS LOCATED WITHIN THE PUBLIC ROW
 - EXTERNAL DROP CONNECTIONS SHALL BE INSTALLED ACCORDING TO SUDAS FIGURE 6010.307. ALL PIPES, FITTINGS, AND ENCASEMENTS SHALL COMPLY WITH SUDAS 6010.2.16.B.
- THE FOLLOWING MINIMUM CLEARANCES MUST BE MAINTAINED, ACCORDING TO SUDAS SPECIFICATION 5010.3.07: REFER TO "WATER MAIN SEPARATION REQUIREMENTS" TABLE FOR MORE INFORMATION.
- WATER MAIN SHALL BE LOCATED 10 FEET HORIZONTALLY DISTANT FROM ALL SANITARY SEWER AND STORM SEWER.
 - WATER MAIN SHALL NOT PASS THROUGH NOR CONTACT A SEWER OR A SEWER MANHOLE. A MINIMUM HORIZONTAL SEPARATION OF 3 FEET SHALL BE MAINTAINED.
 - VERTICAL SEPARATION OF WATER MAINS CROSSING OVER ANY SANITARY SEWER SHOULD BE A MINIMUM OF 18-INCHES, MEASURED OUTSIDE TO OUTSIDE FROM THE CLOSEST EDGE OF EACH PIPE. IF PHYSICAL CONDITIONS PROHIBIT THIS SEPARATION, THE WATER MAIN SHALL NOT BE PLACED CLOSER THAN 6-INCHES ABOVE A SEWER OR 18-INCHES BELOW A SEWER. THE SEPARATION DISTANCE SHALL BE THE MAXIMUM FEASIBLE IN ALL CASES. WHERE THE STORM SEWER CROSSES OVER OR LESS THAN 18 INCHES BELOW A WATER MAIN, LOCATE ONE FULL LENGTH OF REINFORCED CONCRETE PIPE (RCP) WITH FLEXIBLE G-RING GASKET JOINTS SO BOTH JOINTS ARE AS FAR AS POSSIBLE FROM THE WATER MAIN.
 - VIDEO INSPECTION OF ALL SANITARY SEWER MAINS IS REQUIRED PRIOR TO CITY ACCEPTING OWNERSHIP OF THE SYSTEM.

15) ALL SANITARY SEWER AND SERVICE LINES SHALL BE AIR TESTED TO PASS THE FOLLOWING TEST:
LOW PRESSURE AIR TESTING (SUDAS 4060.3.04.C)

- SUDAS TABLE 4060.02: TEST DURATION
- | PIPE DIAMETER, (INCHES) | TEST PERIOD DURATION (MINUTES) |
|-------------------------|--------------------------------|
| 8 | 4.0 |
| 10 | 5.0 |
| 12 | 6.0 |
| 15 | 7.0 |
| 18 | 8.5 |
| 21 | 10.0 |
| 24 | 11.5 |
| 27 | 13.0 |
| 30 | 14.0 |
| 36 | 17.0 |
| 42 | 20.0 |
| 48 | 23.0 |
| 54 | 25.5 |
| 60 | 28.5 |
- PERFORM FROM MANHOLE-TO-MANHOLE AFTER BACKFILL, CLEAN AND WET PIPE LINE
 - PLUG ALL INLETS AND OUTLETS TO RESIST THE TEST PRESSURE.
 - USE THE TABLE TO THE RIGHT TO DETERMINE THE TEST DURATION FOR SECTION BEING TESTED.
PRESSURE HOLDING TIME IS BASED ON AVERAGE HOLDING PRESSURE OF 3.0 PSI OR DROP FROM 3.5-2.5 PSI.
 - INTRODUCE LOW-PRESSURE AIR INTO SEALED LINE AND ACHIEVE INTERNAL AIR PRESSURE OF 4 PSIG GREATER THAN MAXIMUM PRESSURE EXERTED BY GROUNDWATER ABOVE PIPE INVERT. PRESSURE IN SEWER SHOULD NOT EXCEED 5.0 PSI.
 - ALLOW 2 MINUTES MINIMUM FOR AIR PRESSURE TO STABILIZE. DISCONNECT LOW-PRESSURE AIR HOSE FROM CONTROL PANEL.
 - WHEN PRESSURE HAS STABILIZED AND IS AT OR ABOVE THE STARTING TEST PRESSURE OF 3.5 PSI, COMMENCE THE TEST. RECORD THE DROP IN PRESSURE FOR THE TEST PERIOD. THE TEST MAY BE DISCONTINUED WHEN THE PRESCRIBED TEST TIME HAS BEEN COMPLETED, EVEN THOUGH 1.0 PSI DROP HAS NOT OCCURRED.
 - IF THE GROUNDWATER LEVEL AT THE TIME OF TESTING IS ABOVE THE PIPE INVERT, ADD 0.43 PSI OF AIR PER FOOT OF WATER ABOVE THE INVERT TO TEST AIR PRESSURE RANGE OF 2.5 PSI TO 3.5 PSI STATED ABOVE.
 - IF THE PRESSURE DROP EXCEEDS 1.0 PSI DURING THE TEST PERIOD, THE TEST WILL BE CONSIDERED TO HAVE FAILED. LOCATE AND REPAIR LEAKS, AND RETEST THE LINE.
 - AIR TESTING SHALL BE CONSIDERED INCIDENTAL TO SANITARY SEWER CONSTRUCTION.
- ALL SEWERS SHALL HAVE A DEFLECTION TEST PERFORMED AS FOLLOWS:
- DEFLECTION TEST SHALL BE CONDUCTED AFTER THE FINAL BACKFILL HAS BEEN IN PLACE AT LEAST 30 DAYS.
 - DEFLECTION TEST TO BE CONDUCTED BY PULLING A 9 ARM DEFLECTION MANDREL, COMPLYING WITH APPLICABLE ASTM STANDARDS, THROUGH SEWER BY HAND, IN ACCORDANCE WITH SUDAS SPECIFICATION 4060.3.03.
 - NO PIPE SHALL EXCEED A DEFLECTION OF 5% OF INSIDE PIPE DIAMETER.
- MANHOLE FRAME AND LID TO BE NEENAH R-1642 SELF SEALING OR APPROVED EQUAL. MANHOLE FRAMES IN PAVING SHALL ALSO BE NON-ROCKING



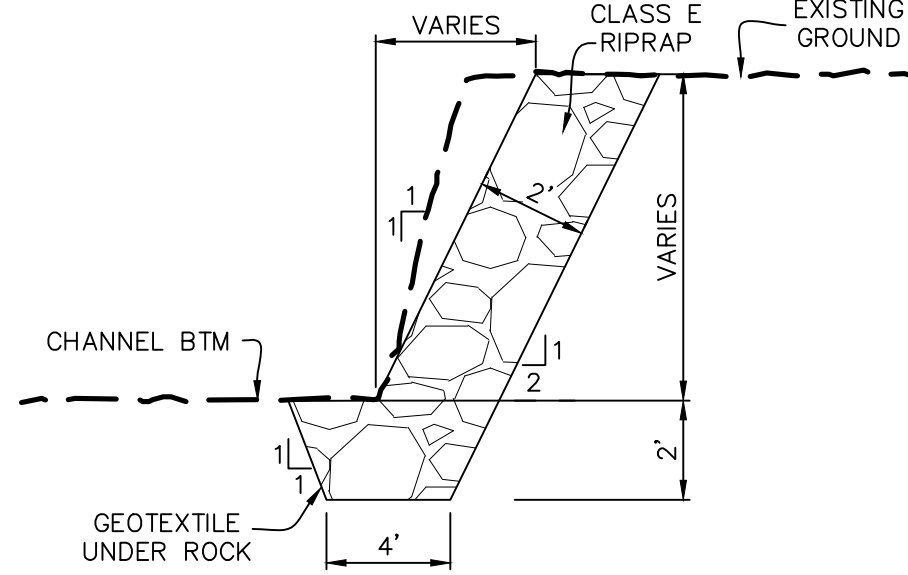
WHERE PUBLIC OR PRIVATE UTILITY FIXTURES ARE SHOWN AS 'EXISTING ON THE PLANS' OR 'ENCOUNTERED' WITHIN THE CONSTRUCTION AREA, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE OWNERS OF THOSE UTILITIES PRIOR TO THE BEGINNING OF ANY CONSTRUCTION. THE CONTRACTOR SHALL AFFORD ACCESS TO THOSE FACILITIES FOR NECESSARY MODIFICATION OF SERVICES. UNDERGROUND FACILITIES, STRUCTURES AND UTILITIES HAVE BEEN PLOTTED FROM AVAILABLE SURVEYS AND RECORDS, AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS POSSIBLE THAT THERE MAY BE OTHER FACILITIES IN THE CONSTRUCTION AREA, THE EXISTENCE OF WHICH IS NOT PRESENTLY KNOWN OR SHOWN HEREON. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THEIR EXISTENCE AND EXACT LOCATION, AND TO AVOID DAMAGE THERETO. NO CLAIMS FOR ADDITIONAL COMPENSATION WILL BE ALLOWED TO THE CONTRACTOR FOR ANY INTERFERENCE OR DELAY CAUSED BY SUCH WORK.

PROJECT NOTES:

- SIGNIFICANT TREES ARE SHOWN FOR CLARITY. CONTRACTOR IS RESPONSIBLE TO INSPECT SITE GROWTH BEFORE BID. CONTRACTOR IS RESPONSIBLE FOR ALL TREE AND VEGETATION REMOVAL NECESSARY FOR SEWER MAIN INSTALLATION.
- PROTECT ALL TREES AS NOTED ON PLAN.
- CITY RESERVES THE RIGHT TO SALVAGED MANHOLE SECTIONS AND CASTING. CONTRACTOR SHALL DELIVER ALL SUCH MATERIALS TO ELY PUBLIC WORKS FACILITY AND UNLOAD AT A LOCATION ACCEPTABLE TO CITY STAFF.
- STRIP MINIMUM 6" OF TOPSOIL FROM ALL TRENCHING AREAS. STOCKPILE AND REPLACE TOPSOIL FOLLOWING PIPELINE INSTALLATION AND BACKFILL.
- ALL WATER SERVICE AND SANITARY SERVICE LOCATIONS ARE APPROXIMATE. CONTRACTOR SHALL LOCATE ALL SERVICES IN WORK AREA.
- CONTRACTOR SHALL REPLACE ALL FIELD TILE AND DRAIN LINES DISTURBED BY PIPE INSTALLATION.
- DUE TO THE CLOSE PROXIMITY OF HOOSIER CREEK, FREE GROUND WATER IS EXPECTED TO BE ENCOUNTERED DURING CONSTRUCTION. DEWATERING SHALL BE CONDUCTED BY CONTRACTOR ACCORDING TO SUDAS SECTION 3010.3.04. DEWATERING ACTIVITIES ARE CONSIDERED INCIDENTAL TO UTILITY INSTALLATION AND SHALL INCLUDE, BUT NOT LIMITED TO, ALL EQUIPMENT SUCH AS GENERATORS, PUMPS, ROCK FOR SUMP PITS, DISCHARGE PIPING, AND ANY EXCAVATION NEEDED TO FACILITATE DEWATERING. CONTRACTOR SHALL SUBMIT DEWATERING PLAN TO ENGINEER FOR REVIEW PRIOR TO BEGINNING WORK.
- CONTRACTOR SHALL RESTORE AND RESEED ALL AREAS DISTURBED BY SANITARY SEWER INSTALLATION PLUS AREAS DISTURBED BY ACCESS TO WORK AREAS. SEE CG SHEETS FOR TYPES OF SEED TO BE USED.

NOTES:

- RIPRAP SHALL CONFORM WITH THE REQUIREMENTS FOR IOWA DOT CLASS "E" RIPRAP
- EXCAVATED MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM SITE.
- ANY TREE REMOVALS WITHIN THE PROJECT LIMITS SHALL BE INCLUDED IN EXCAVATION ITEMS. TREE MATERIALS SHALL BECOME PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM SITE.



RIPRAP CROSS SECTION



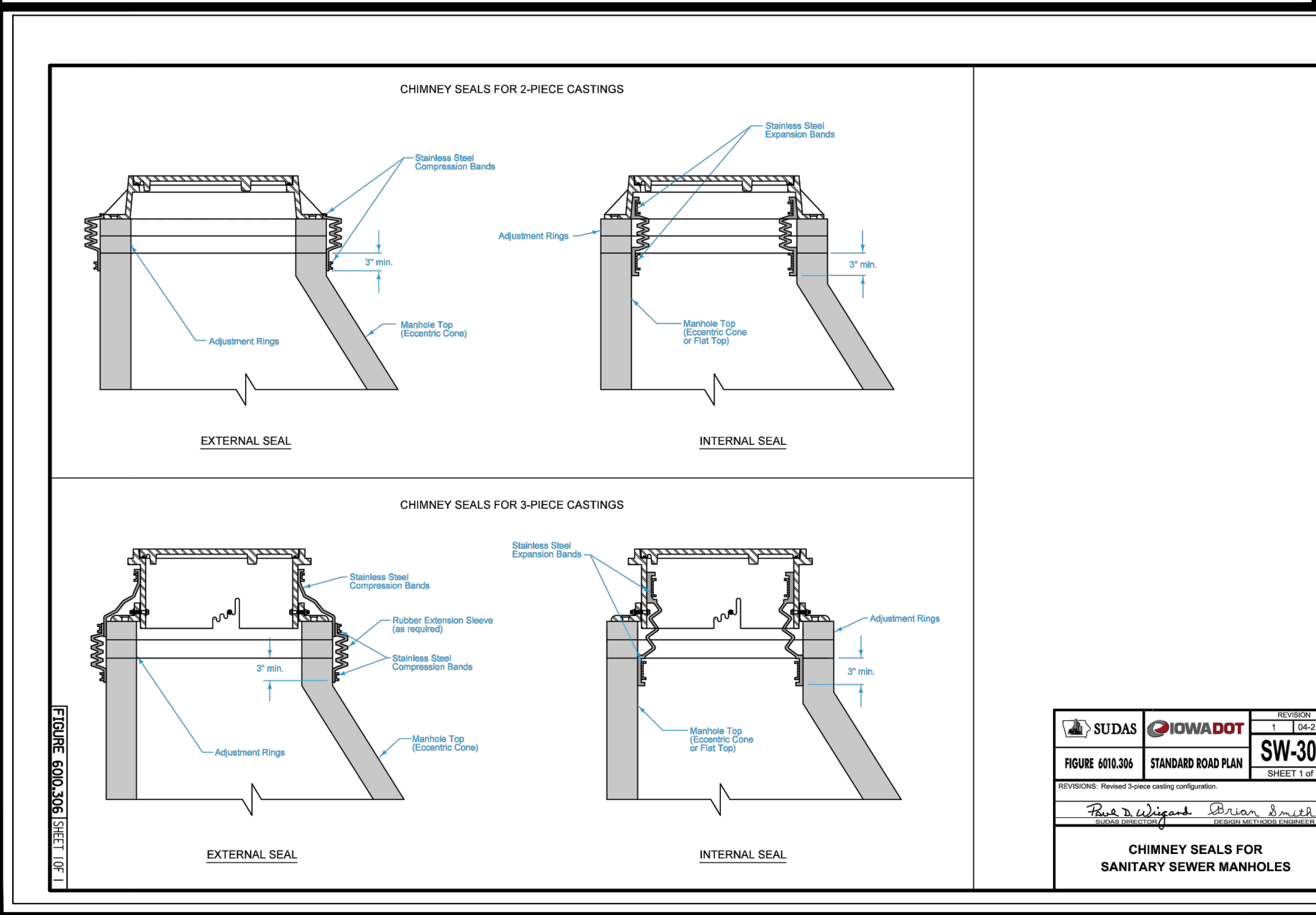
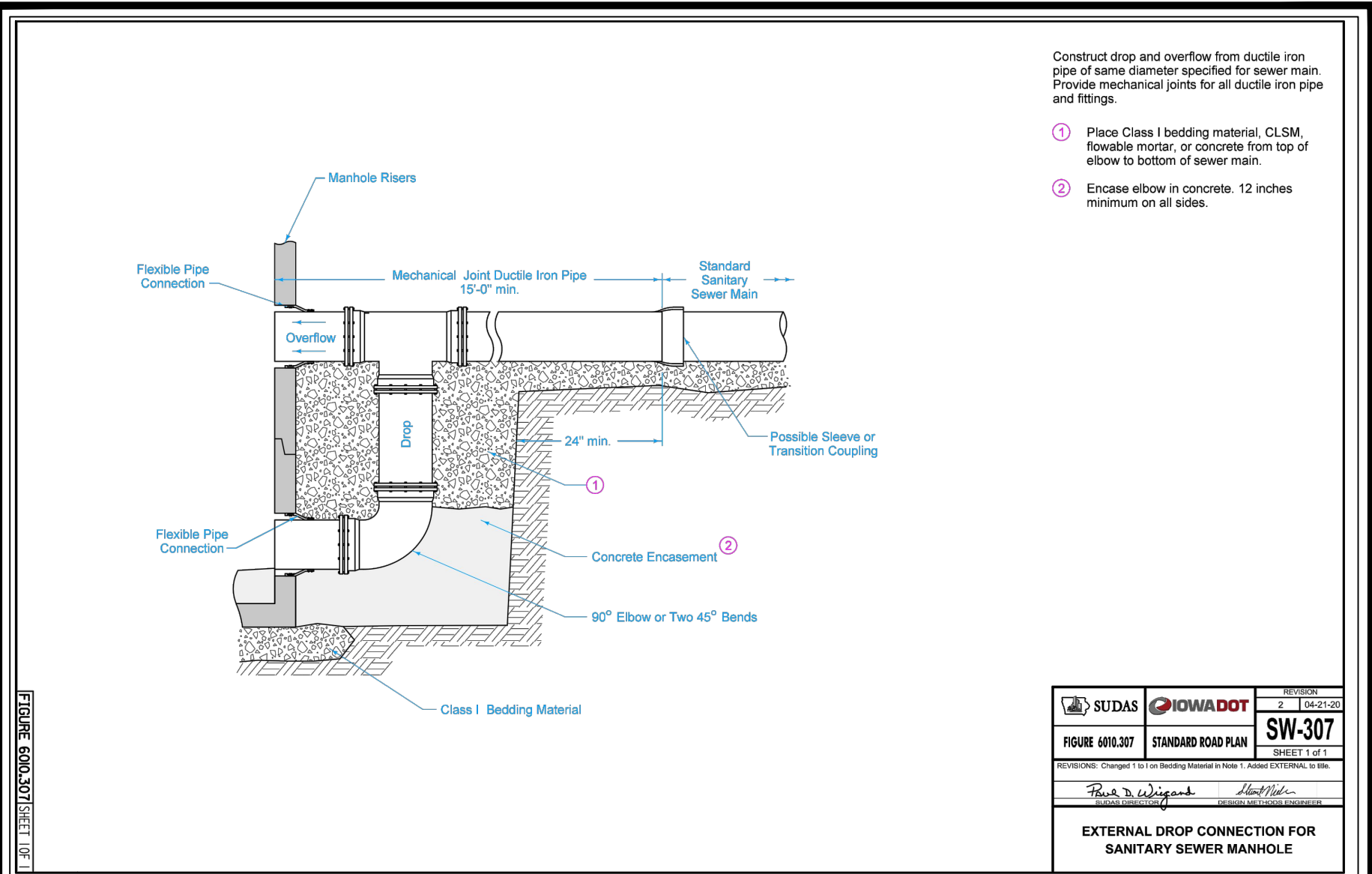
CIVIL ENGINEERS
LAND PLANNERS
LAND SURVEYORS
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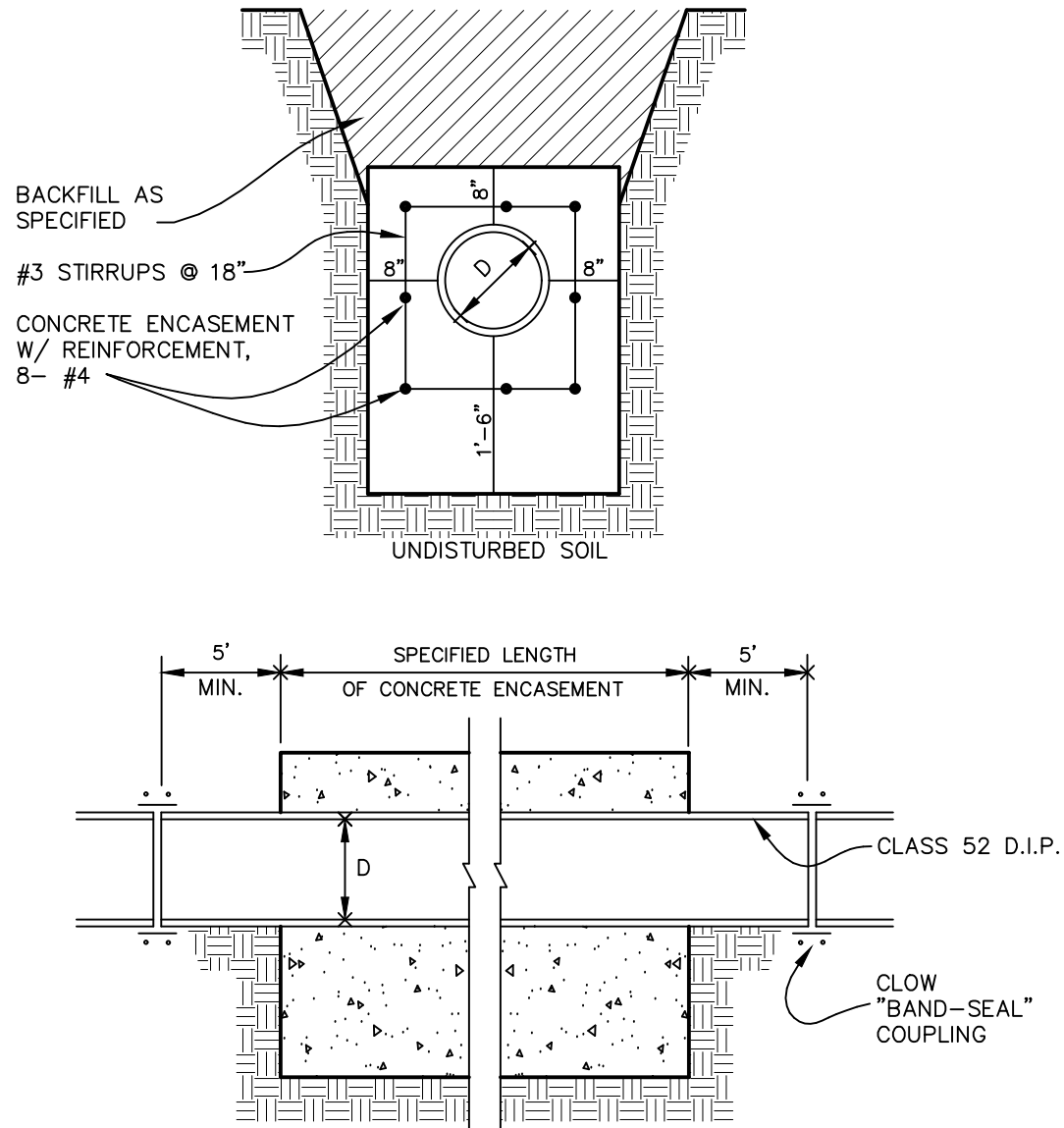
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Date

Revision

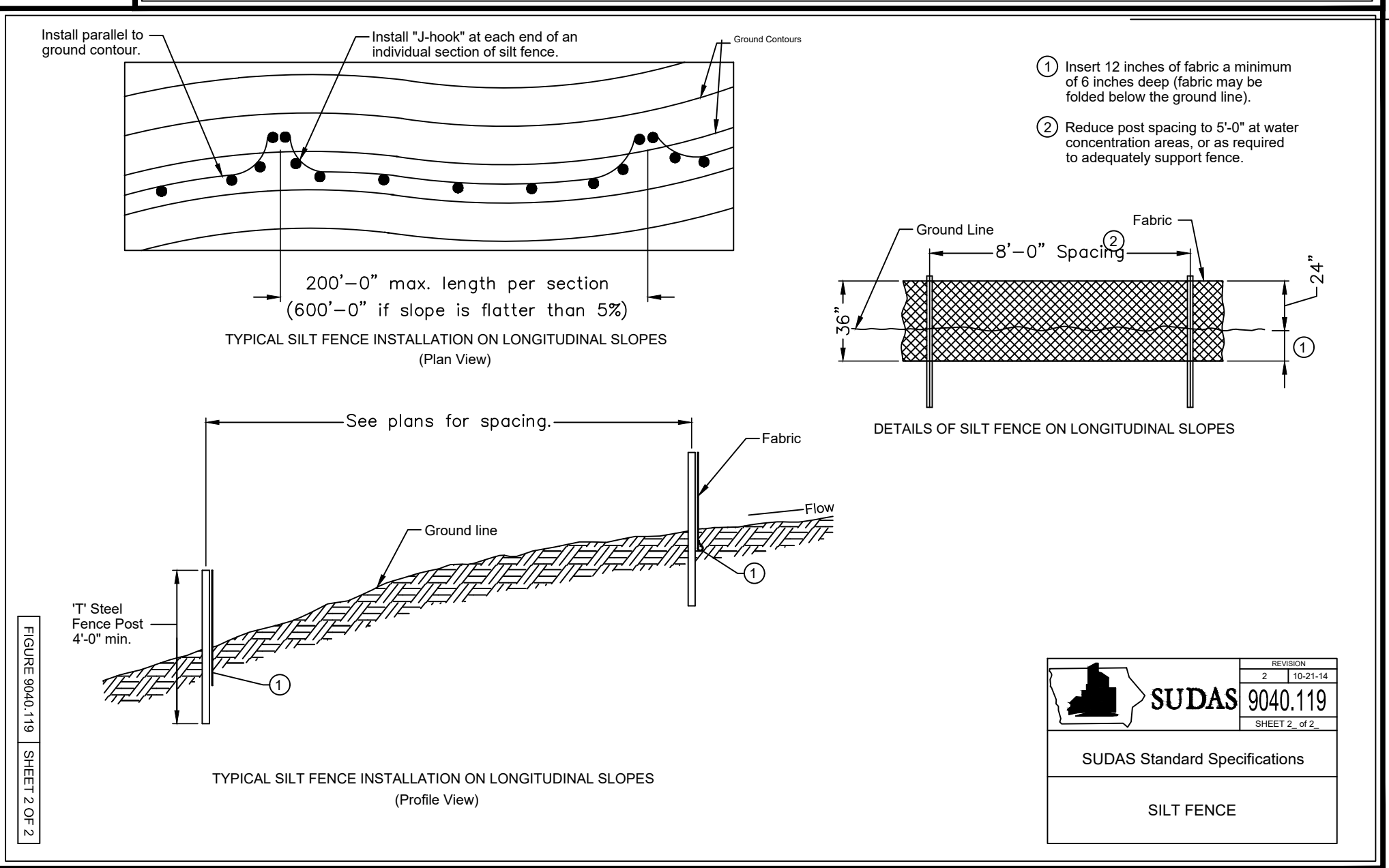
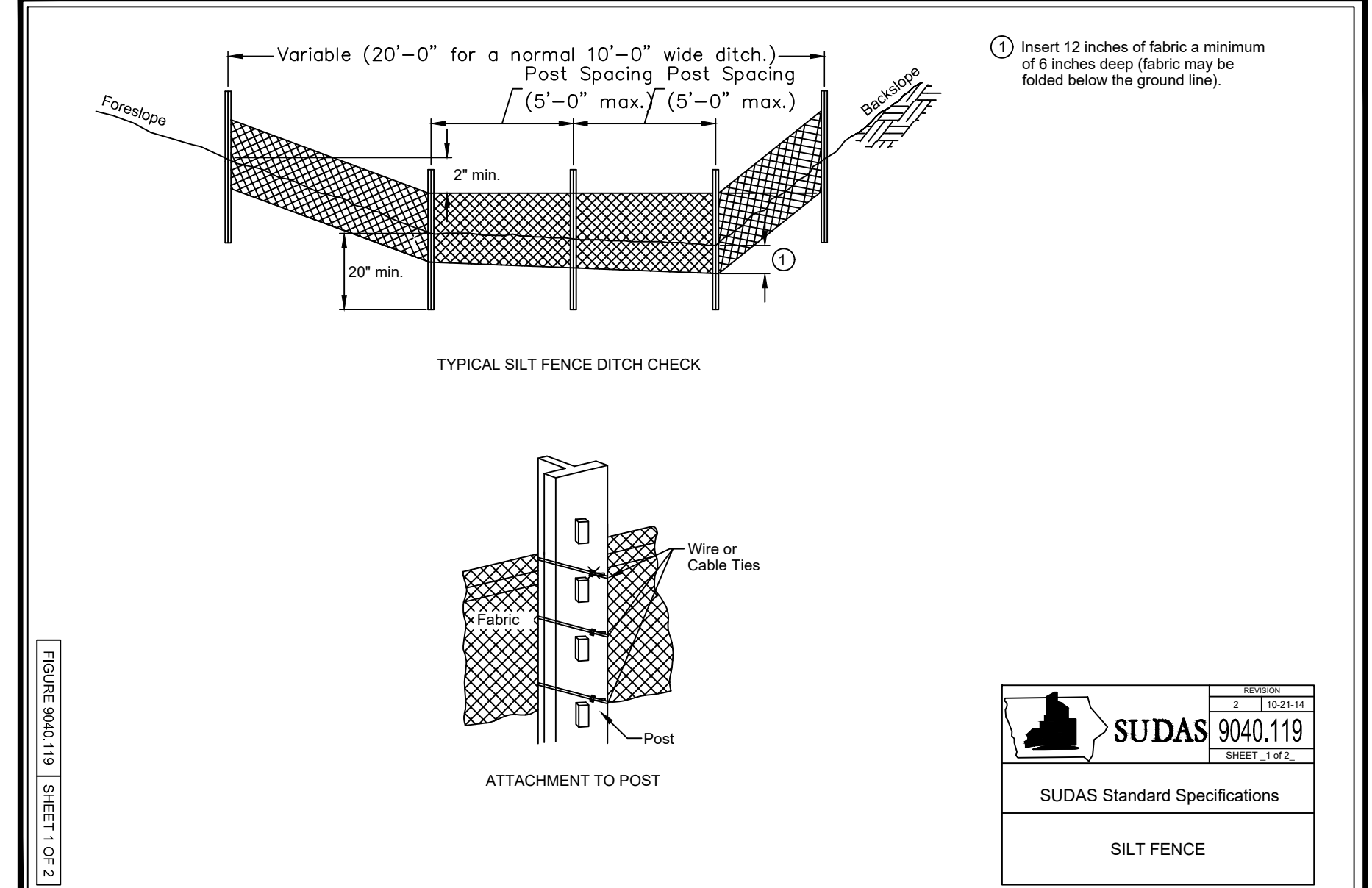


CONCRETE ENCASEMENT DETAIL



NOTES:

- CONCRETE ENCASEMENT SHALL BE IN ACCORDANCE WITH THIS STANDARD DRAWING AND SHALL BE PROVIDED AT THE LOCATIONS NOTED ON THE PLANS.
- LENGTH OF CONCRETE ENCASEMENT SHALL BE AS NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER. PAYMENT FOR CONCRETE ENCASEMENT WILL BE MADE AT THE UNIT PRICE OR UNIT ADJUSTMENT PRICE ESTABLISHED IN THE PROPOSAL. THE UNIT PRICE FOR CONCRETE ENCASEMENT SHALL INCLUDE ALL LABOR EQUIPMENT AND MATERIALS REQUIRED TO COMPLETE THE ENCASEMENT AS SHOWN. DUCTILE IRON PIPE AND DISSIMILAR PIPE CONNECTIONS WILL BE PAID FOR SEPARATELY.
- PIPE SHALL BE DUCTILE IRON PIPE (DIP, CLASS 52) OF THE SAME NOMINAL DIAMETER AS THE SANITARY SEWER PIPE. DUCTILE IRON PIPE SHALL EXTEND A MINIMUM OF 5 FEET EACH WAY BEYOND THE LENGTH OF CONCRETE ENCASEMENT NOTED ON THE PLANS.
- PROVIDE TWO (2) TEMPORARY PIPE SUPPORTS UNDER BARREL PER PIPE LENGTH. PROVIDE TIES AND BRACES TO PREVENT DISPLACEMENT OR FLOATATION DURING CONCRETE PLACEMENT.
- PROVIDE MINIMUM CONCRETE COVER OF EIGHT (8) INCHES. TRENCH WALLS MAY BE USED TO FORM CONCRETE.
- CONCRETE SHALL BE TYPE M-3, IN ACCORDANCE WITH I.D.O.T. ARTICLE 2301.04E, OR ENGINEER APPROVED EQUIVALENT. MINIMUM COMPRESSIVE STRENGTH: 4,000 PSI.



GENERAL NOTES AND DETAILS

HOOSIER CREEK TRUNK SEWER PROJECT
CITY OF ELY LINN COUNTY IOWA

MMS CONSULTANTS, INC.

Date: 12/11/2020

Designed by: SBP Field Book No:

Drawn by: JEB Scale: NTS

Checked by: SBP Sheet No:

Project No: CU500

IOWA CITY

5701-077