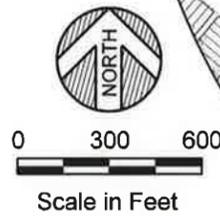
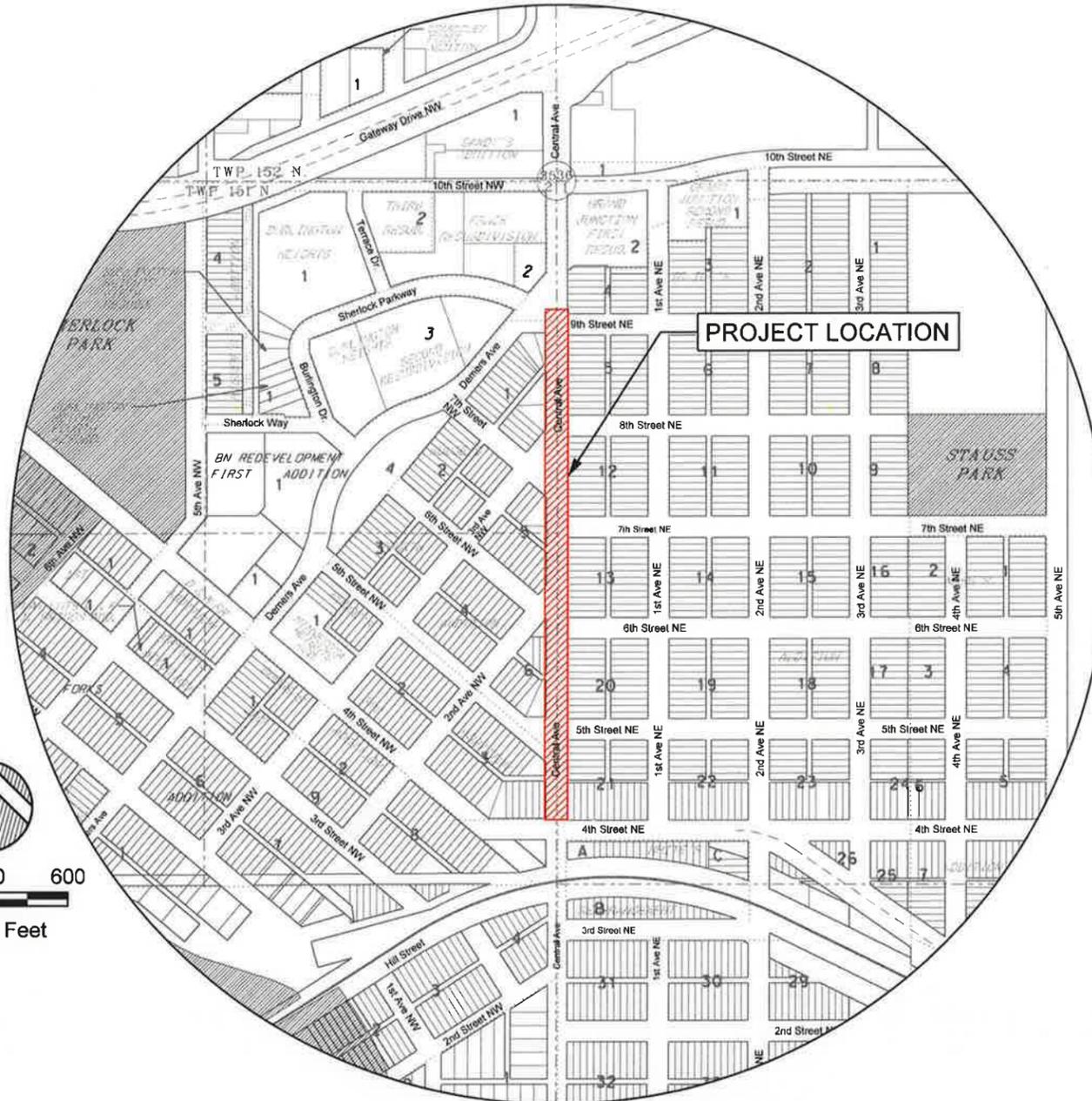


Construction Plans For 2021 WATERMAIN REPLACEMENT EAST GRAND FORKS WATER & LIGHT DEPARTMENT East Grand Forks, Minnesota



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- C1.0 GENERAL AREA LAYOUT - NOTES
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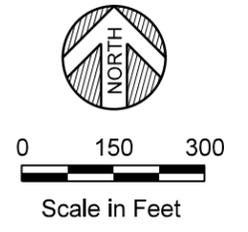
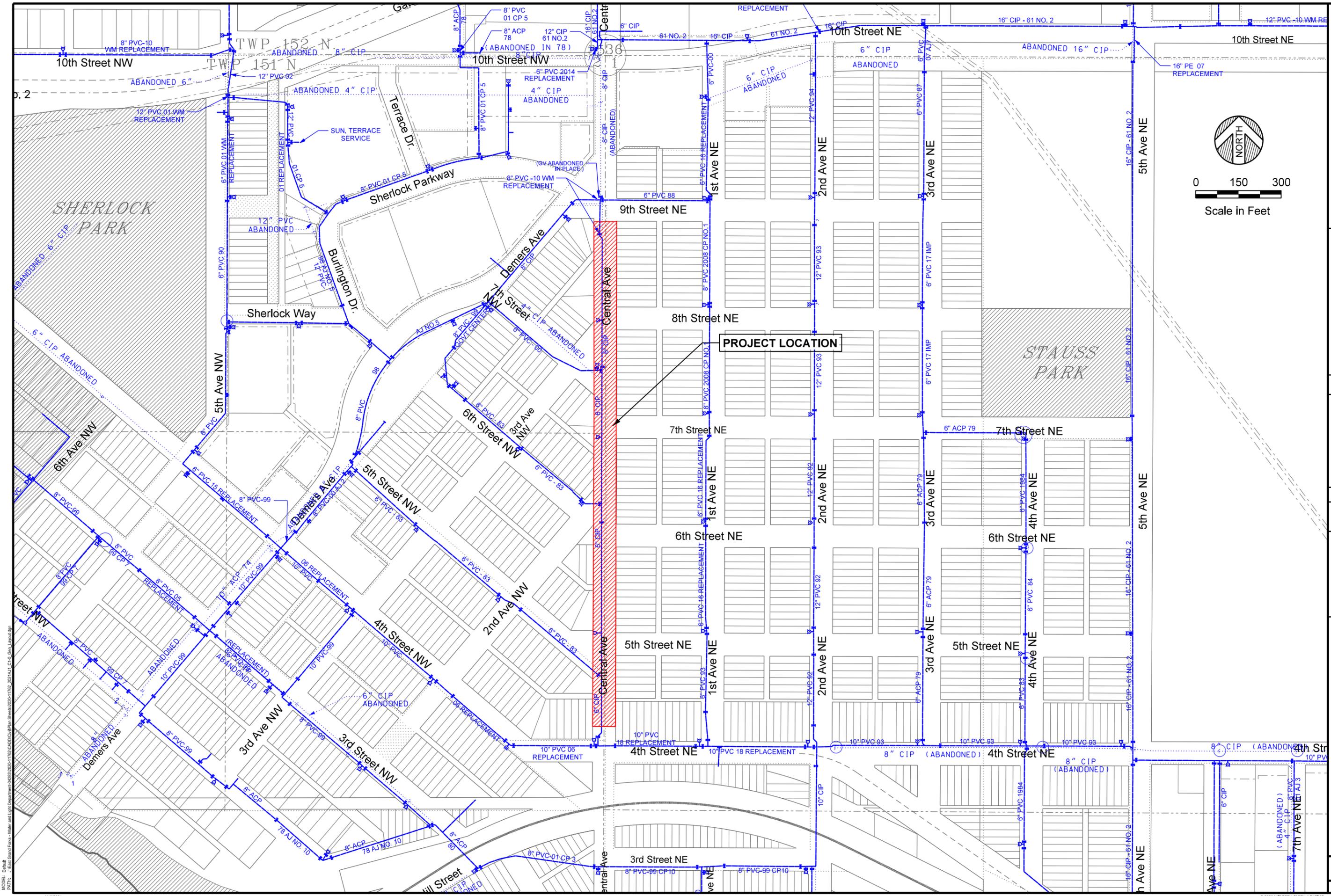
CITY OF EAST GRAND FORKS, MINNESOTA

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, AND REPORT HAVE BEEN PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A LICENSED PROFESSIONAL ENGINEER AND ARCHITECT IN THE STATE OF MINNESOTA.
Shawn A. Emery
DATE: 01/19/21
PL. NO. 41384

REVISIONS DESCRIPTION	BY	DATE

DATE: 01/19/21	SCALE: As shown	DRAWN BY: RAB	CHECKED BY: SRE	DATE: 2020-11-22	JOB NUMBER: 2020-11762
2021 Watermain Replacement East Grand Forks Water & Light Department East Grand Forks, Minnesota					
Title Sheet					

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1/19/2021



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 Steven R. Emery
 DATE: 01/19/21

DATE	SCALE	DRAWN BY	CHECKED BY	JOB NUMBER
01/19/21	As Shown	RBE	SRE	2020-11762

2021 Watermain Replacement
 East Grand Forks Water & Light Department
 East Grand Forks, Minnesota
 General Area Layout - Notes

SHEET NO.
C1.0
 SHEET OF

MODEL: Detail
 PART: East Grand Forks Water and Light Department
 1/19/2021

WATERMAIN SERVICE TABULATIONS							
REF #	STATION	LENGTH	SIZE	ADDRESS	STREET	SHEET REF.	NOTES
W-1	0+30.9	51 LF	8"x1"	818	CENTRAL AVENUE	C4.0	
W-2	1+04.5	52 LF	8"x1"	812	CENTRAL AVENUE	C4.0	
W-3	1+55.5	52 LF	8"x1"	808	CENTRAL AVENUE	C4.0	
W-4	1+57.4	6 LF	8"x1"	809	CENTRAL AVENUE	C4.0	
W-5	1+94.7	7 LF	8"x1"	809	CENTRAL AVENUE	C4.0	VERIFY SERVICE
W-6	1+97.1	51 LF	8"x1"	804	CENTRAL AVENUE	C4.0	
W-7	1+29.8	7 LF	8"x1"	805	CENTRAL AVENUE	C4.0	
W-8	2+89.7	8 LF	8"x1"	707	3RD AVENUE NW	C4.0	
W-9	3+49.4	52 LF	8"x1"	722	CENTRAL AVENUE	C4.1	
W-10	3+80.0	53 LF	8"x1"	718	CENTRAL AVENUE	C4.1	
W-11	3+83.0	70 LF	8"x1"	714	CENTRAL AVENUE	C4.1	
W-12	4+82.2	52 LF	8"x1"	710	CENTRAL AVENUE	C4.1	
W-13	5+16.4	62 LF	8"x1"	624	3RD AVENUE NW	C4.1	
W-14	5+23.1	46 LF	8"x1"	219	7TH STREET NW	C4.1	
W-15	5+40.2	51 LF	8"x1"	706	CENTRAL AVENUE	C4.1	
W-16	5+90.4	47 LF	8"x1"	702	CENTRAL AVENUE	C4.1	
W-17	6+10.2	4 LF	8"x1"	701	CENTRAL AVENUE	C4.1	
W-18	6+74.9	9 LF	8"x1"	625	CENTRAL AVENUE	C4.1	
W-19	7+18.8	49 LF	8"x1"	622	CENTRAL AVENUE	C4.1	
W-20	7+89.4	51 LF	8"x1"	618	CENTRAL AVENUE	C4.1	
W-21	8+07.6	51 LF	8"x1"	616	CENTRAL AVENUE	C4.1	
W-22	8+56.3	51 LF	8"x1"	612	CENTRAL AVENUE	C4.1	
W-23	8+75.5	51 LF	8"x1"	610	CENTRAL AVENUE	C4.1	
W-24	8+77.8	9 LF	8"x1"	204	6TH STREET NW	C4.1	
W-25	9+53.4	51 LF	8"x1"	604	CENTRAL AVENUE	C4.2	
W-26	10+97.6	51 LF	8"x1"	7	6TH STREET NE	C4.2	
W-27	11+31.9	4 LF	8"x1"	515	CENTRAL AVENUE	C4.2	
W-28	11+49.3	49 LF	8"x1"	520	CENTRAL AVENUE	C4.2	
W-29	12+09.5	51 LF	8"x1"	514	CENTRAL AVENUE	C4.2	
W-30	12+81.7	54 LF	8"x1"	510	CENTRAL AVENUE	C4.2	
W-31	13+10.1	51 LF	8"x1"	506	CENTRAL AVENUE	C4.2	
W-32	13+28.5	12 LF	8"x1"	106	5TH STREET NW	C4.2	
W-33	13+63.5	51 LF	8"x1"	502	CENTRAL AVENUE	C4.2	
W-34	13+68.5	51 LF	8"x1"	12	5TH STREET NE	C4.3	
W-35	15+07.0	56 LF	8"x1"	5	5TH STREET NE	C4.3	
W-36	15+25.0	51 LF	8"x1"	418	CENTRAL AVENUE	C4.3	
W-37	15+93.6	51 LF	8"x1"	414	CENTRAL AVENUE	C4.3	
W-38	17+14.4	51 LF	8"x1"	2	4TH STREET NE	C4.3	
SERVICE LENGTH		1,576 LF					

ESTIMATED QUANTITIES			
ITEM NO.	DESCRIPTION	UNIT	TOTAL
015526	Mobilization	LS	1
015526	Traffic Control	LS	1
015713	Storm Drain Inlet Protection	EA	20
024100	Remove Pavement	SY	71
024100	Remove Concrete Curb & Gutter, B624	LF	378
024100	Remove Concrete Sidewalk	SF	8,495
024100	Remove Concrete Driveway	SY	92
024100	Remove Gate Valve & Box	EA	2
024100	Salvage Existing Gate Valve & Box	EA	1
024100	Abandon Gate Valve	EA	5
024100	Remove Fire Hydrant	EA	4
024100	Salvage Sign	EA	7
024100	Remove Tree	EA	4
321216	Construct Pavement	SY	71
321600	6" Concrete Driveway Pavement	SY	92
321600	Concrete Curb & Gutter, Design B624	LF	378
321600	4" Concrete Sidewalk	SF	5,018
321600	6" Concrete Sidewalk	SF	2,667
321600	Detectable Warning Panels	SF	225
329219	Topsoil Borrow (LV)	CY	150
329219	Turf Establishment	SY	2,620
331000	6" PVC Watermain	LF	30
331000	8" PVC Watermain	LF	568
331000	Push & Bore 8" PVC Watermain	LF	1,182
331000	6" Fire Hydrant (8.5' Bury)	EA	1
331000	6" Fire Hydrant (9.0' Bury)	EA	2
331000	6" Gate Valve & Box	EA	3
331000	8" Gate Valve & Box	EA	11
331000	Ductile Iron Fittings	LBS	615
331000	6" Transition Coupling	EA	3
331000	8" Transition Coupling	EA	1
331000	8" x 1" Saddle With Corporation	EA	38
331000	1" Water Service	LF	1,576
331000	1" Curb Stop & Box	EA	38
331000	Sampling Tap	EA	3
331000	Aggregate Pipe Foundation	CY	25
331000	Temporary Water	LS	1
331000	Compaction Tests	EA	8

GENERAL NOTES

- CONTRACTOR SHALL CONTACT GOPHER STATE ONE CALL FOR EXACT LOCATIONS OF ALL UTILITIES. 1-800-252-1166
- CONTRACTOR SHALL BE AWARE WITHIN THE CONSTRUCTION LIMITS THERE ARE RESTRICTIVE RIGHT OF WAYS. CONTRACTOR SHALL PROVIDE EVERYTHING NECESSARY TO CONSTRUCT THE WATERMAIN AND MAINTAIN THE INTEGRITY OF THE EXISTING CURB & GUTTER, STREETS DRIVEWAYS, SIDEWALKS AND OTHER APPURTENANCES NOTED NOT TO BE REMOVED.
- ANY EXCESS EXCAVATION MATERIALS SHALL BE DISPOSED OF BY THE CONTRACTOR AT THE CONTRACTOR PROVIDED DISPOSAL SITE. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION AND NO ADDITIONAL PAYMENT WILL BE MADE.
- ALL OPEN HOLES OR EXCAVATION AREAS SHALL BE COMPLETELY ENCLOSED OFF WITH SNOW FENCE DURING THE EVENING. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
- A CITY PERMIT FOR EXCAVATION MUST BE ACQUIRED FROM THE BUILDING OFFICIAL PRIOR TO ANY WORK COMMENCING. PERMIT FROM CHAPTER 6 ORDINANCES, SECTION 6.08, SOURCE 56, 3RD SERIES.
- CONTRACTOR MAY BE REQUIRED TO TRIM OVERHANGING BRANCHES IN CONSTRUCTION AREA TO PREVENT DAMAGE TO EXISTING TREES DURING INSTALLATION OF WATERMAIN. (INCIDENTAL TO CONSTRUCTION)
- ALL PAVEMENT, SIDEWALK AND CURB REMOVALS SHALL BE SAWCUT FULL DEPTH. INCIDENTAL TO REMOVALS.
- EXISTING CURB STOPS AND BOXES IF NOT REMOVED SHALL BE CUT OFF THREE FEET BELOW GRADE AND ABANDONED. (INCIDENTAL TO CONSTRUCTION)
- REMOVAL OF ANY EXISTING GATE VALVES AS WELL AS HYDRANTS SHALL INCLUDE PLUGGING ABANDONED WATERMAIN WITH CONCRETE. (INCIDENTAL TO REMOVAL BID ITEM)
- CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY WATER TO ALL AFFECTED RESIDENTIAL AND OR COMMERCIAL PROPERTIES DURING CONSTRUCTION. SHEET C1.0 OF THE PLANS SHOW THE CITY WATER DISTRIBUTION SYSTEM ADJACENT TO THE PROJECT AREAS FOR THE CONTRACTORS USE IN PLANNING THE LAYOUT OF THE TEMPORARY WATER SYSTEM. IF CONTRACTOR NEEDS ANY ADDITIONAL INFORMATION HE SHALL CONTACT WIDSETH WHO WILL PROVIDE INFORMATION AS NEEDED. TEMPORARY WATER LAYOUT AND OR PLANNING IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL REMOVALS SHOWN ON PLANS ARE ESTIMATED QUANTITIES FOR BID PURPOSES ONLY. ALL REMOVALS SHALL BE COORDINATED BETWEEN CONTRACTOR AND ENGINEER AND WILL BE MARKED WITH WHITE PAINT BY ENGINEER. CONTRACTOR SHALL GIVE AT LEAST 24 HOURS NOTICE BEFORE REMOVAL IS NEEDED.

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By: *Steven R. Emery*
DATE: 01/19/21

JOB NUMBER: 2020-1762

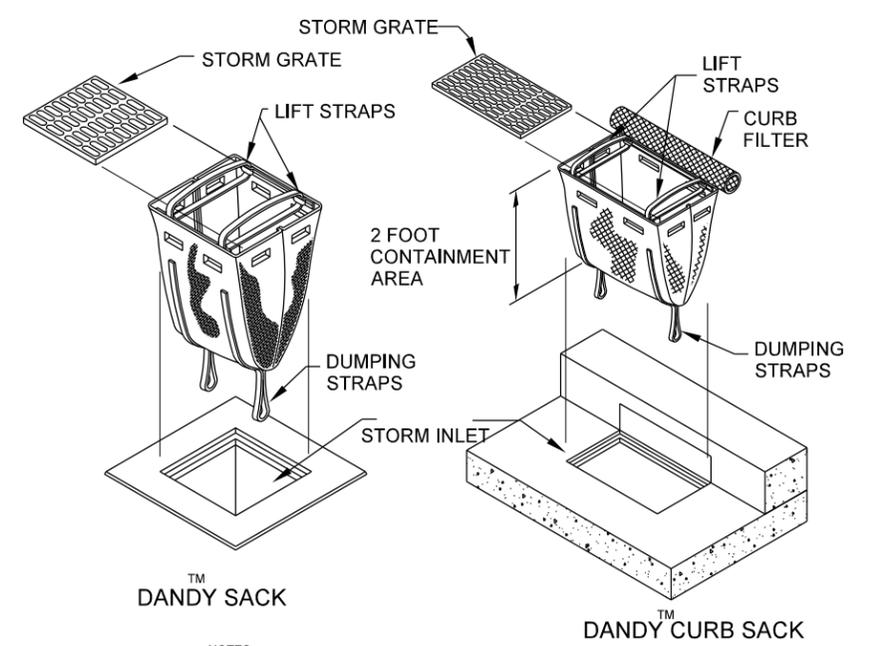
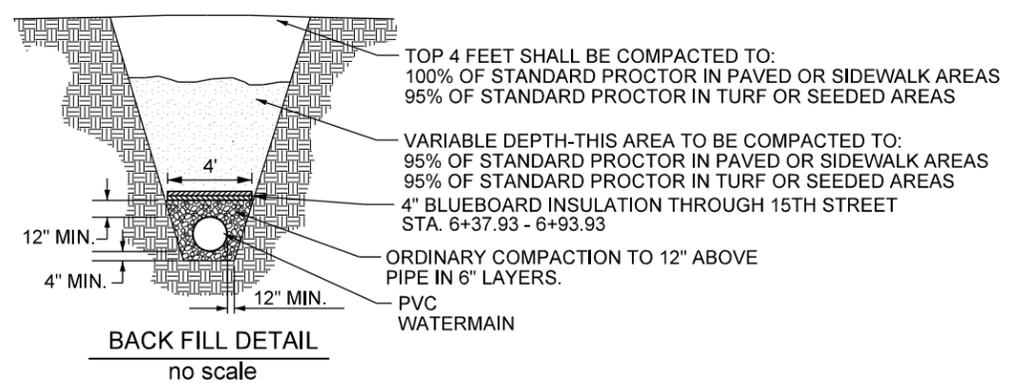
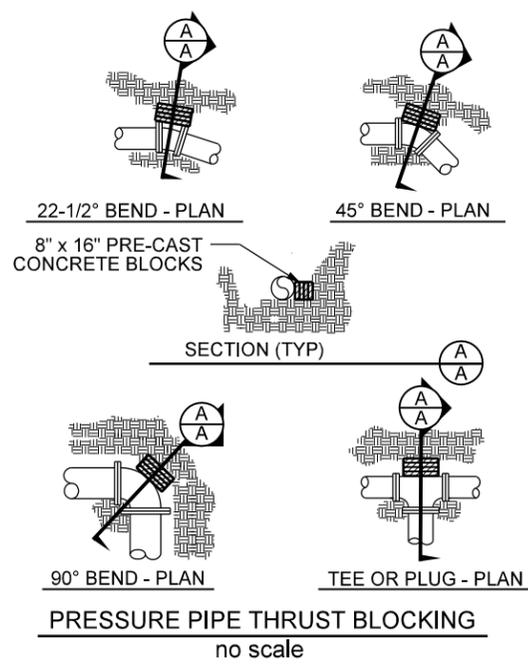
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2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
Tabulations - SEQ - Notes

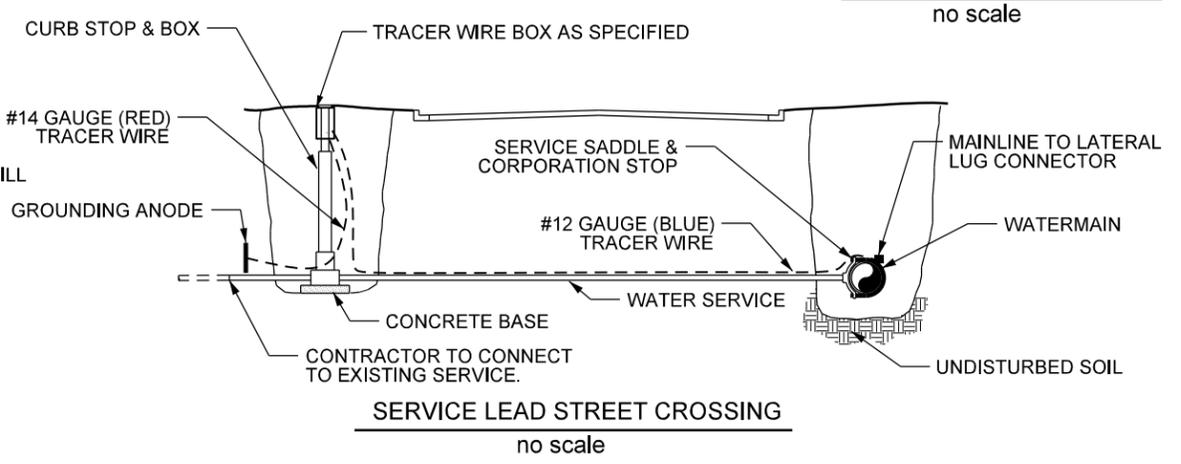
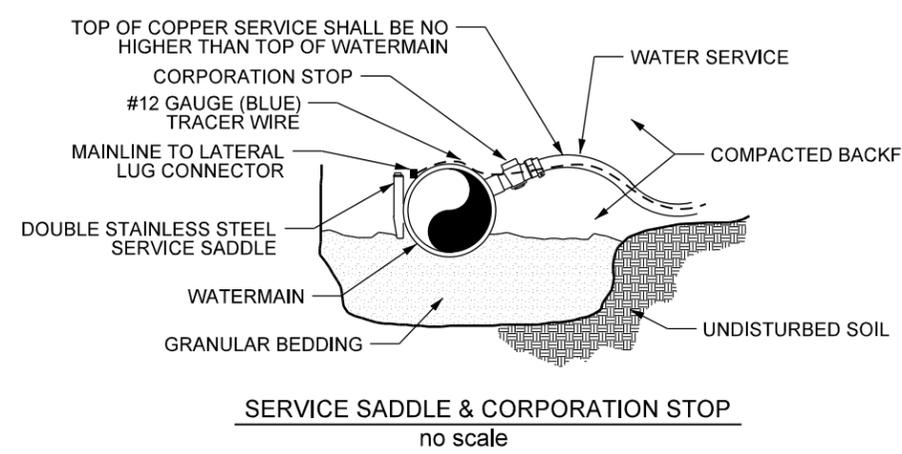
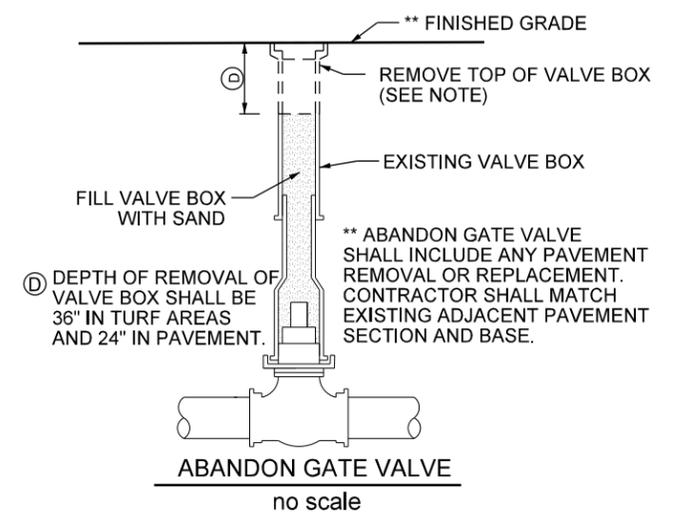
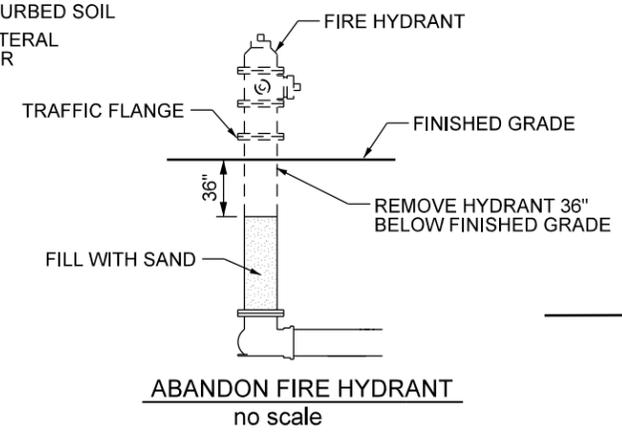
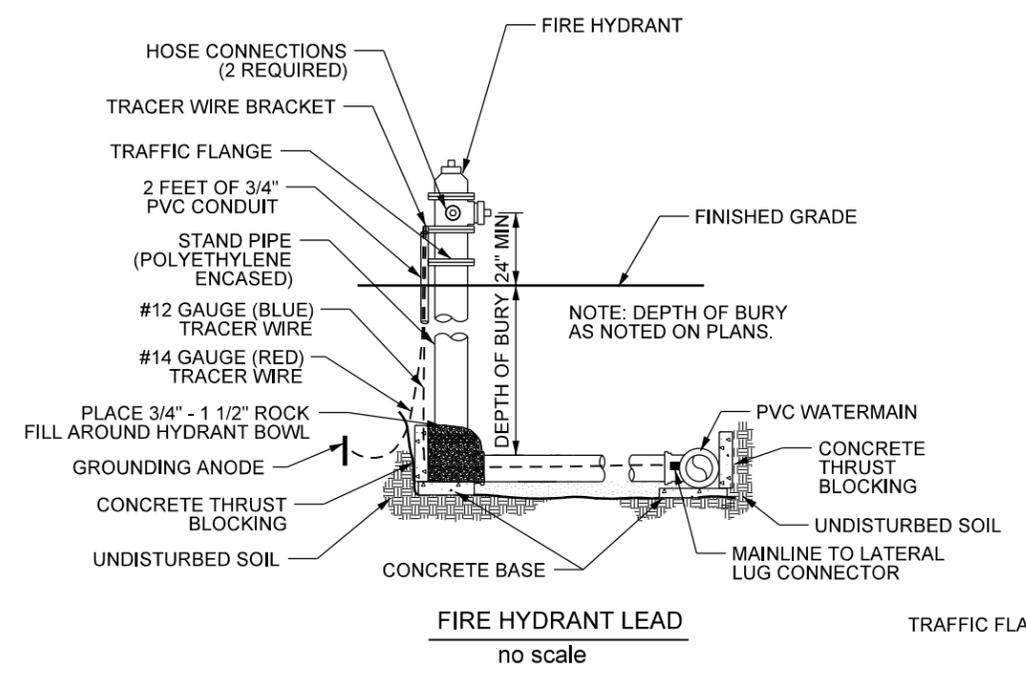
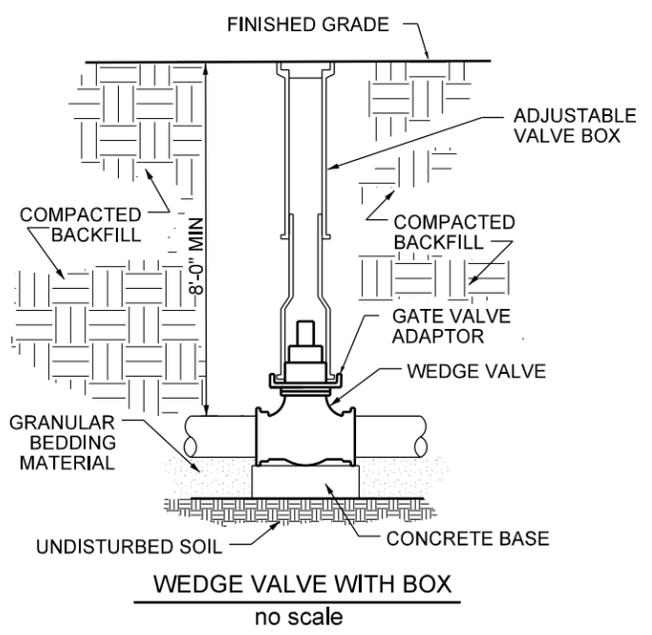
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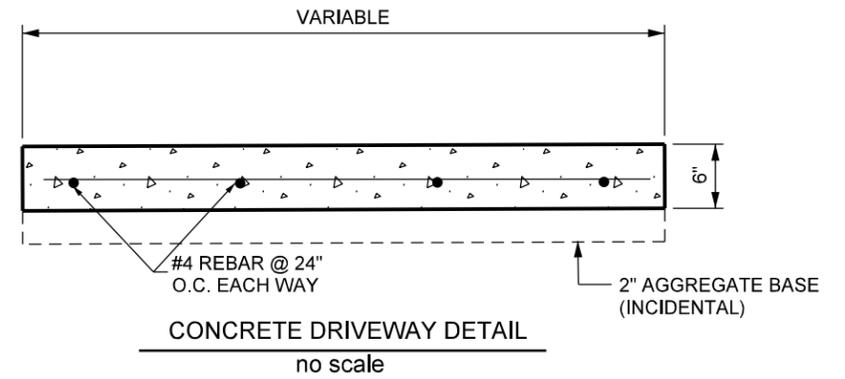
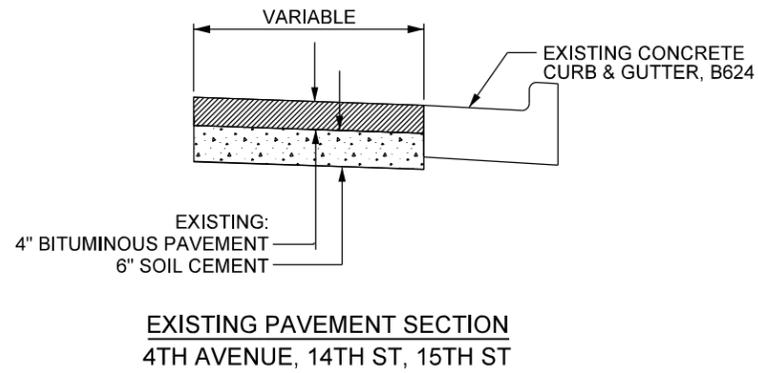
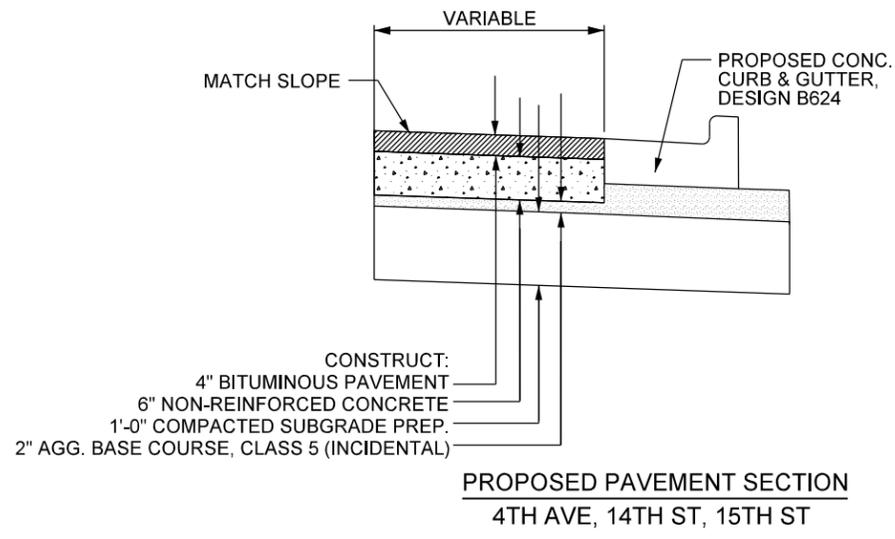
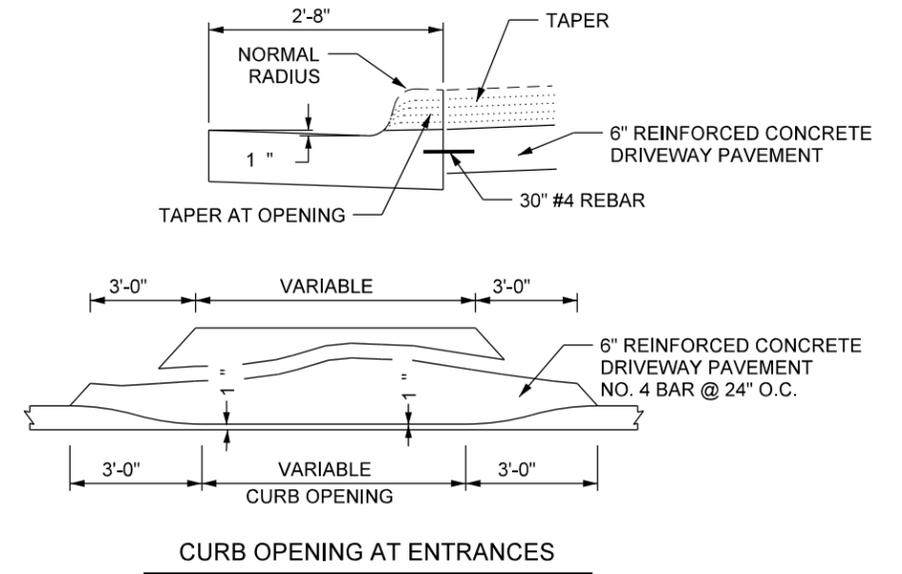
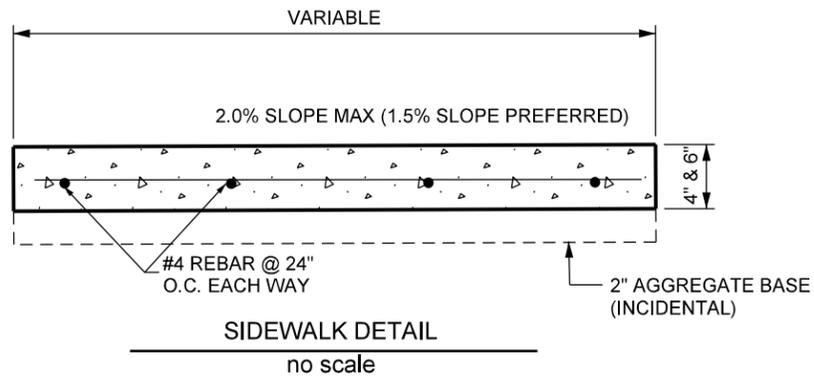
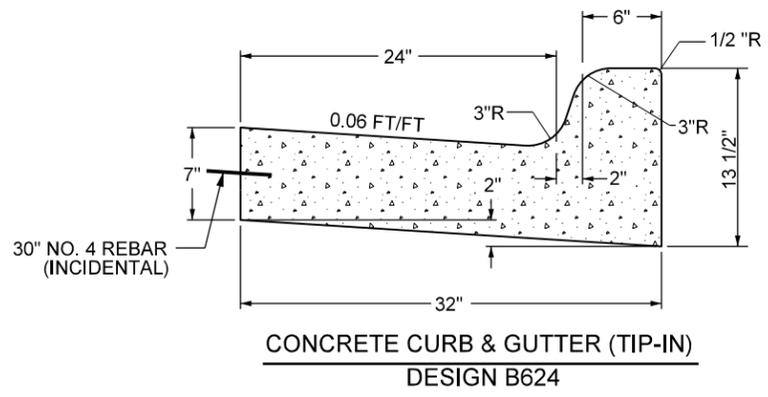
2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
Watermain / Erosion Control Details



NOTES:
1. ALL FILTER BAGS SHALL BE DANDY CURB SACKS, DANDY SACKS OR APPROVED EQUAL.
2. INSTALL AS PER MANUFACTURERS SPECIFICATIONS:
a) Remove the grate from the catch basin.
b) Stand the grate on end. Move the top lifting straps out of the way and place the grate into the Dandy Curb Sack or Dandy Sack unit so that the grate is below the top straps and above the lower straps. The grate should be cradled between the upper and lower straps.
c) Holding the lifting devices, insert the grate into the inlet, then lower back edge with cylindrical tube (Dandy Curb Sack only) into place, being careful that the grate remains in place and being careful not to damage the unit. The cylindrical tube should partially block the curb hood opening when installed properly (Dandy Curb Sack only).
INLET PROTECTION



MODEL: Detail - East Grand Forks - Water and Light Department - 5/20/2020 - 11/20/2021 - 1/19/2021 - C2.0 Details.dwg



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Steven R. Emery
Steven R. Emery DATE: 01/19/21

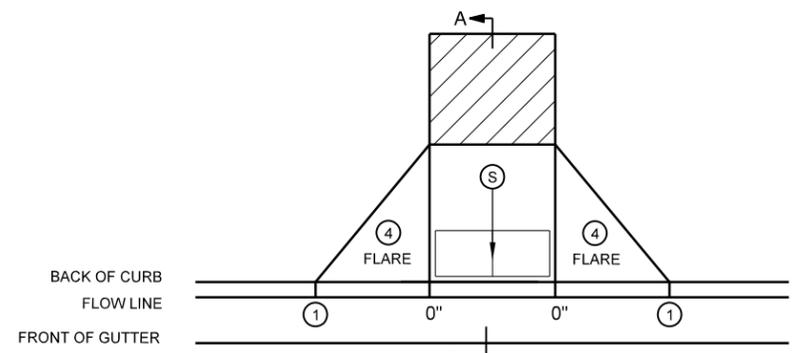
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2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota

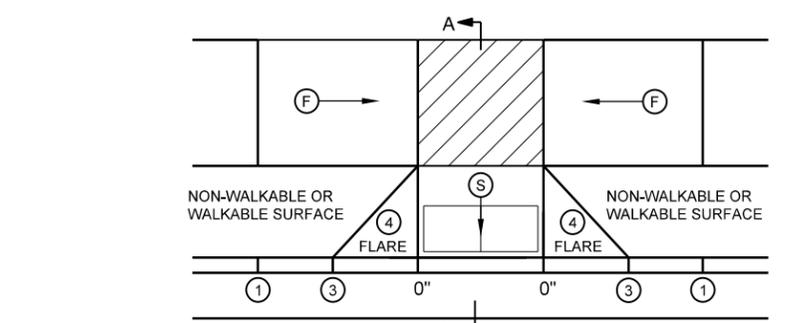
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BY: Steven R. Emery
CHECKED BY: *[Signature]*

DATE	SCALE	DRAWN BY	CHECKED BY	JOB NUMBER
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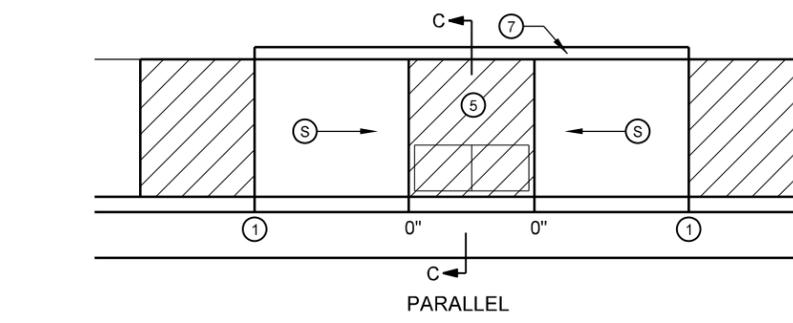
2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
ADA Ramp Details



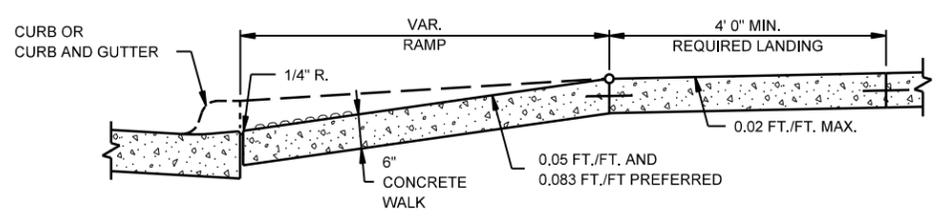
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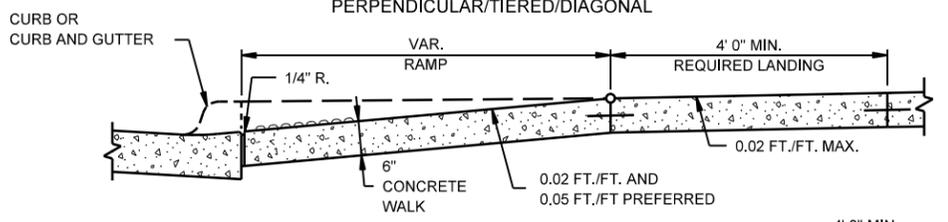
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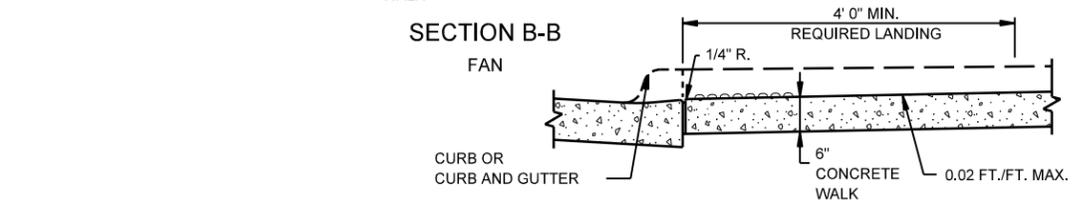
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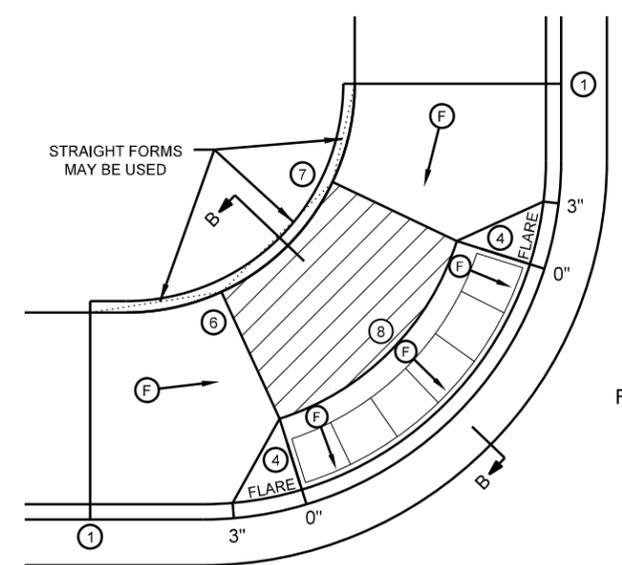
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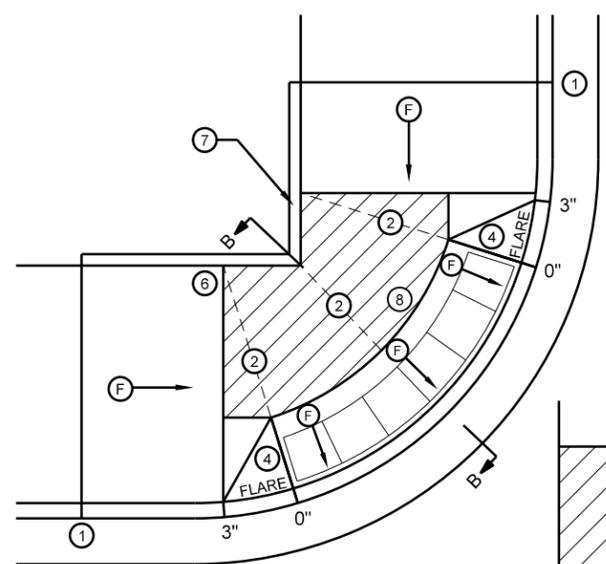
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FAN



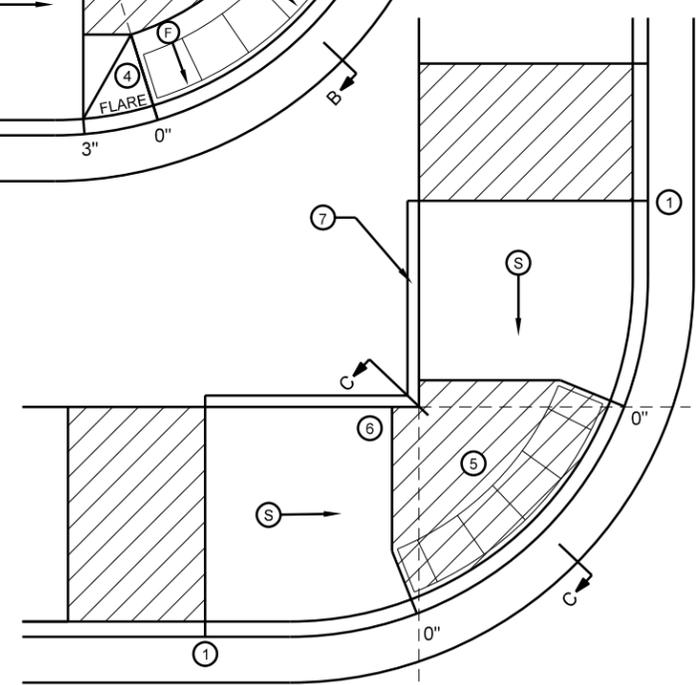
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PARALLEL/DEPRESSED CORNER



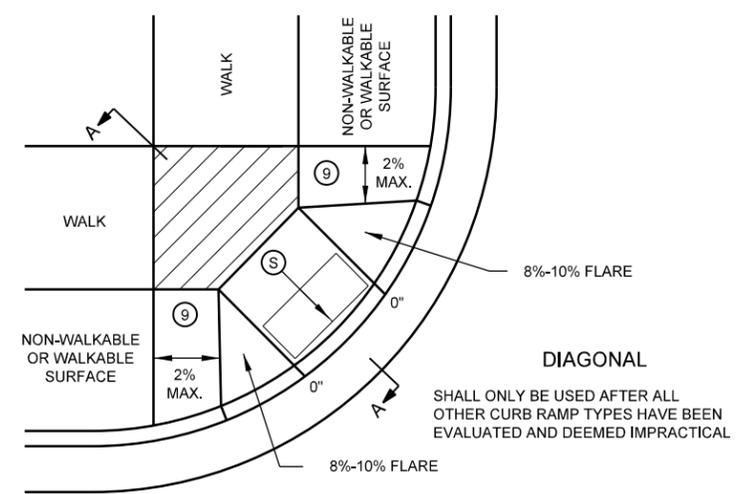
FAN 10



MODIFIED FAN 10
USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



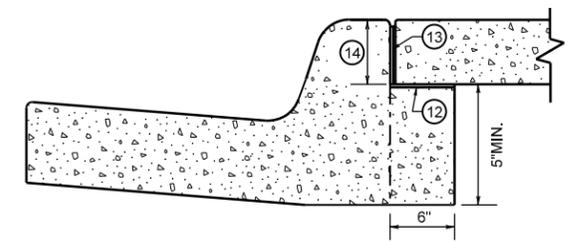
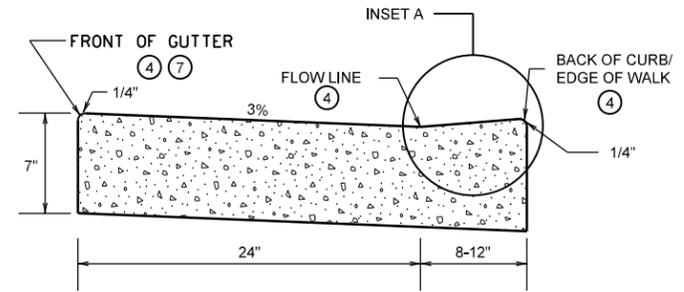
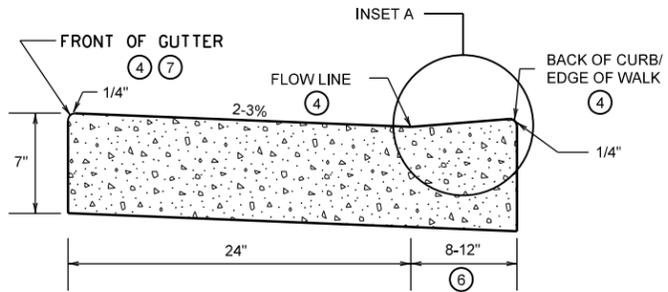
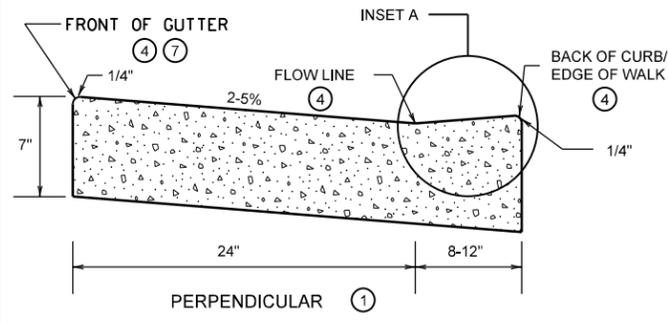
DIAGONAL

NOTES:

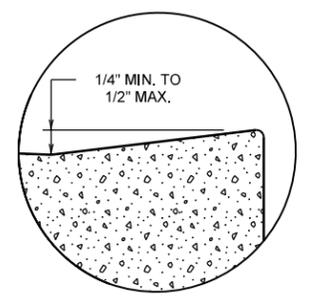
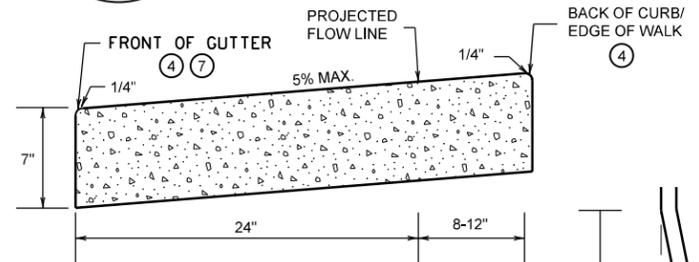
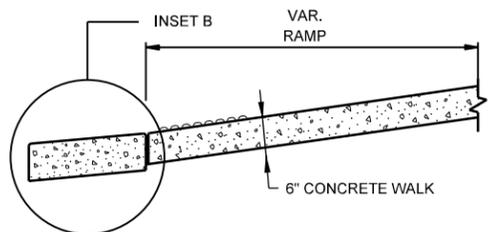
- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
 - INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
 - SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30' OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
 - CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
 - ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN BELOW.)
 - TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).
 - TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
 - WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
 - ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
 - 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
 - RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.
- 1 MATCH FULL HEIGHT CURB.
 - 2 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
 - 3 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
 - 4 SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
 - 5 DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
 - 6 THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
 - 7 WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
 - 8 A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
 - 9 PAVE FULL WALK WIDTH.
 - 10 "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
[Hatched Box]	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
X"	CURB HEIGHT

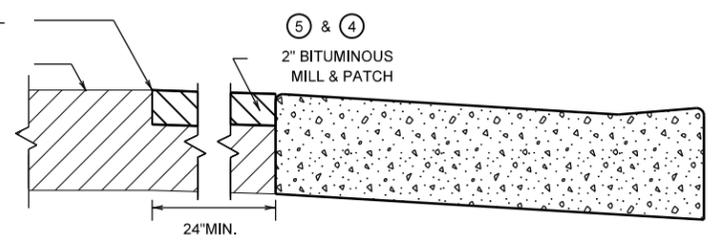
MODEL - Detail - East Grand Forks - Water and Light Department - 5/20/2020 - 1762 CAD/Detail/Plan Sheet/2020-11762_C2.2_MNDOT_Details.dgn



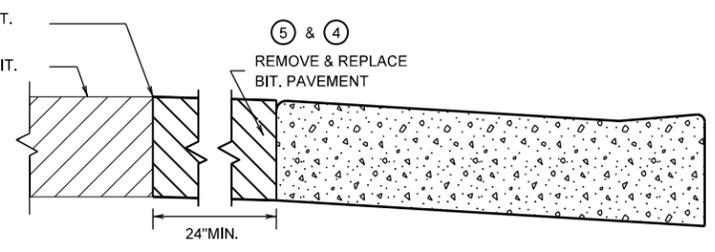
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



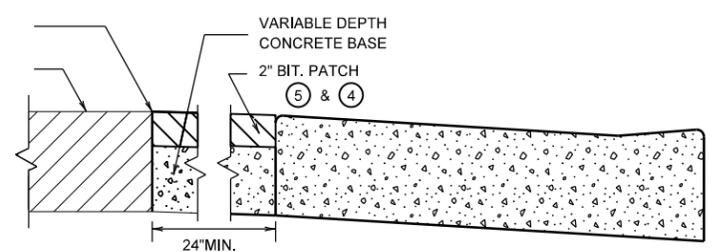
MILL VERTICAL EDGE
EXISTING BIT. PAVEMENT



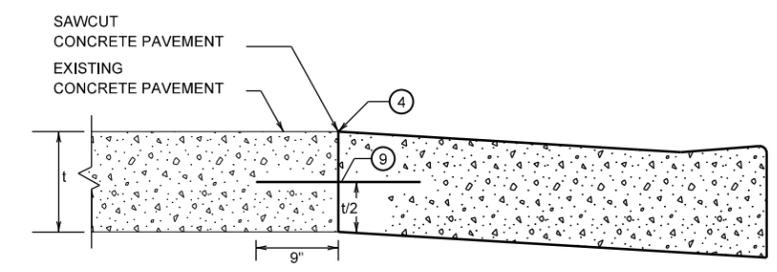
SAWCUT BIT. PAVEMENT
EXISTING BIT. PAVEMENT



SAWCUT BIT. PAVEMENT
EXISTING BIT. PAVEMENT



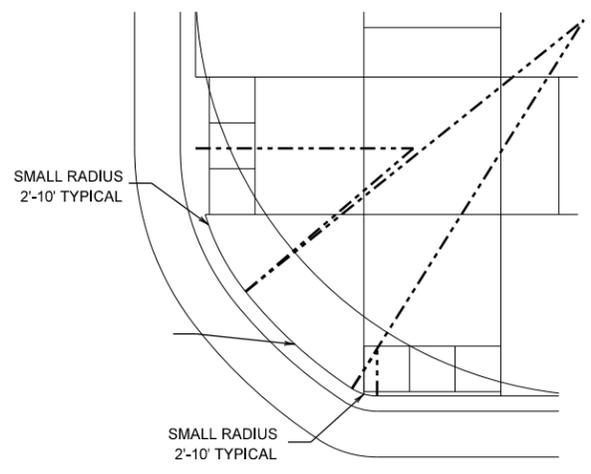
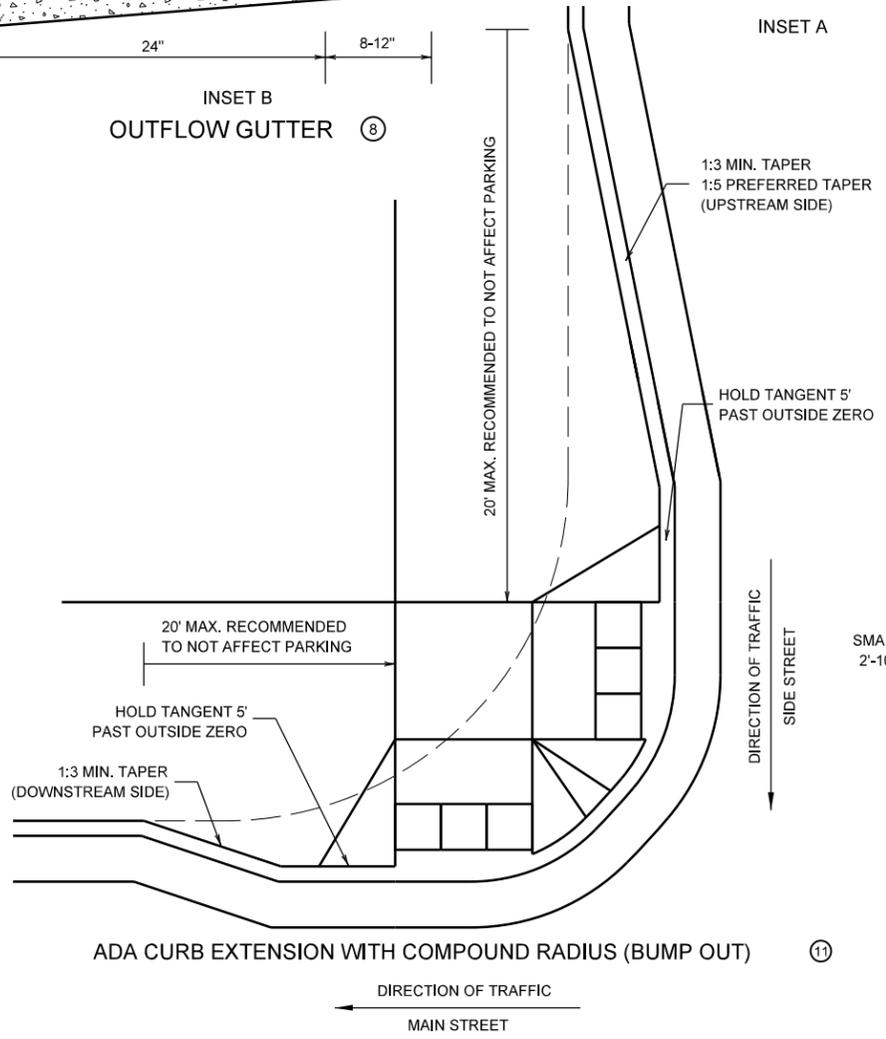
SAWCUT CONCRETE PAVEMENT
EXISTING CONCRETE PAVEMENT



ONLY ALLOWED PER ENGINEER'S APPROVAL

PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

- NOTES:**
- FOR USE ON CURB RAMP RETROFITS
 - POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
 - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
 - ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMP.
 - ② FOR USE AT CURB RAMP WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
 - ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMP.
 - ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
 - ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
 - ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
 - ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
 - ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
 - ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.
 - ⑩ HELPS PROVIDE TWO SEPARATE RAMPS. REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
 - ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.
 - ⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.
 - ⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.
 - ⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪

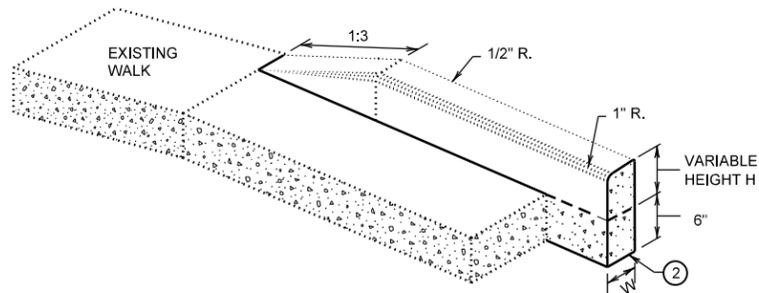
COMBINED DIRECTIONAL (COMPOUND RADIUS) ⑩

MODEL: Detail - East Grand Forks - Water and Light Department - 4/20/2021 - 1752 CAD Detail Plan - Sheet 2021-1752 - C23 - MNDOT Details.dgn

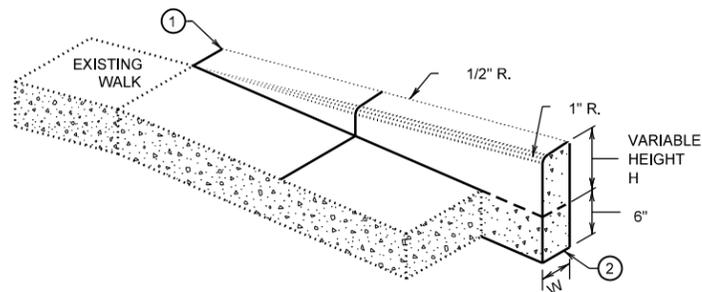
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THE LAWS OF THE STATE OF MINNESOTA. *Steven R. Emery*
DATE: 01/19/21

DATE	SCALE	DRAWN BY	CHECKED BY	DATE	REV#	REVISION DESCRIPTION

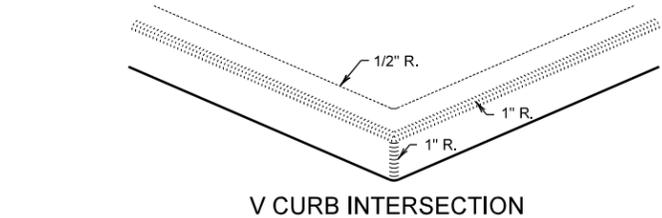
2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
ADA Ramp Details



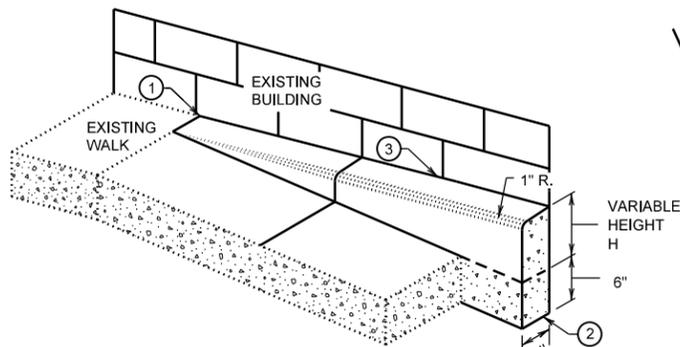
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

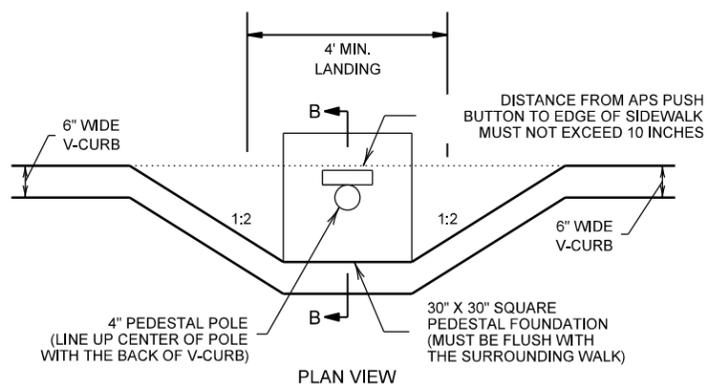


V CURB INTERSECTION

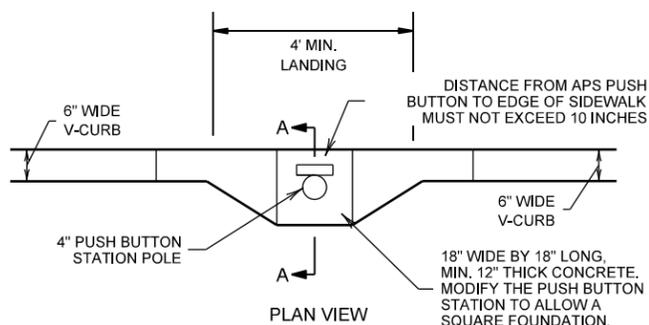


V CURB ADJACENT TO BUILDING
OR BARRIER

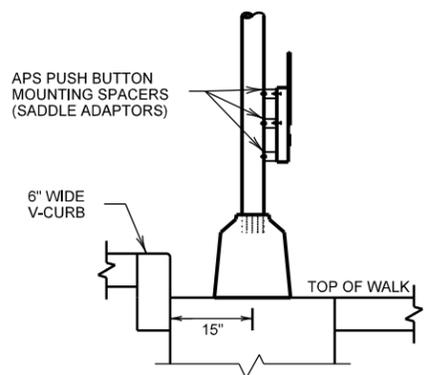
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



PLAN VIEW

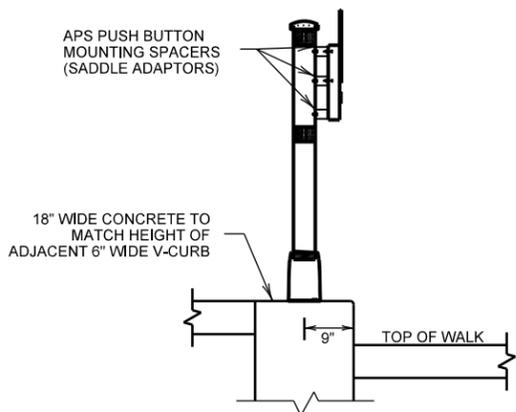


PLAN VIEW



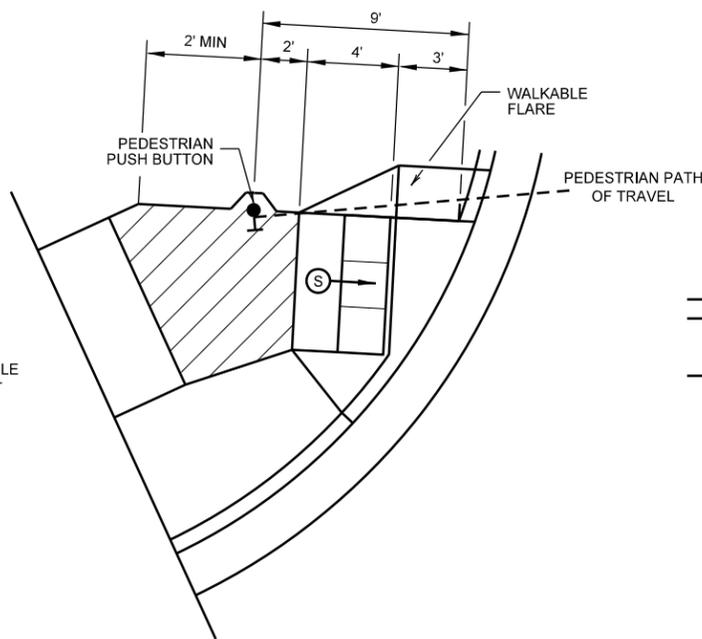
SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

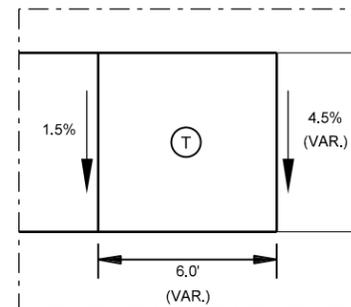
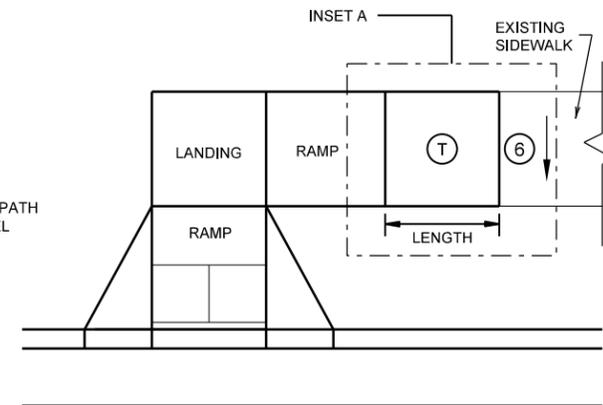
PUSH BUTTON STATION (V-CURB)



SEMI-DIRECTIONAL RAMP (3,4,9)

3' DOME SETBACK, 4' LONG RAMP AND
PUSH BUTTON 9' FROM THE BACK OF CURB

PRIMARILY USED FOR APS APPLICATIONS
WHERE THE PAR DOES NOT CONTINUE PAST
THE PUSH BUTTON (DEAD-END SIDEWALK)



TRANSITION PANEL ④ ⑤

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

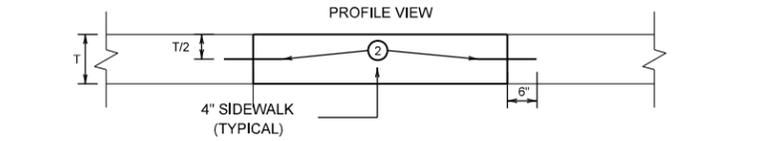
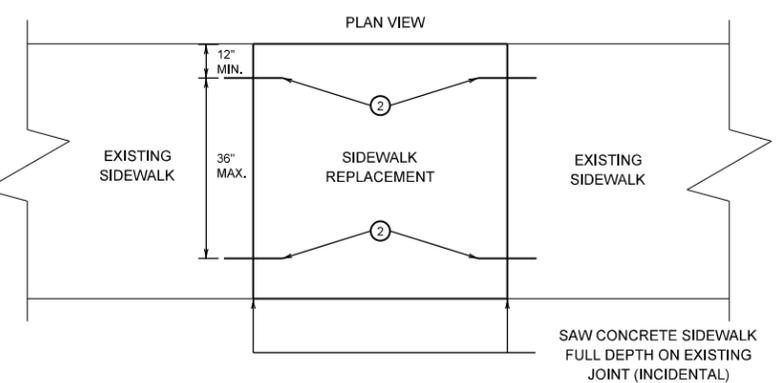
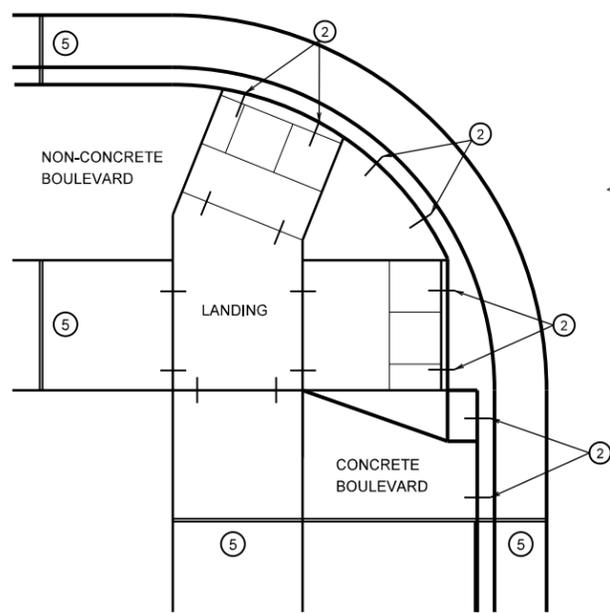
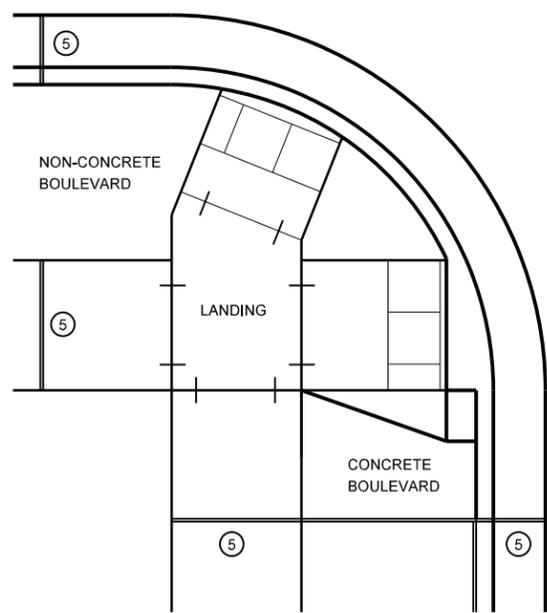
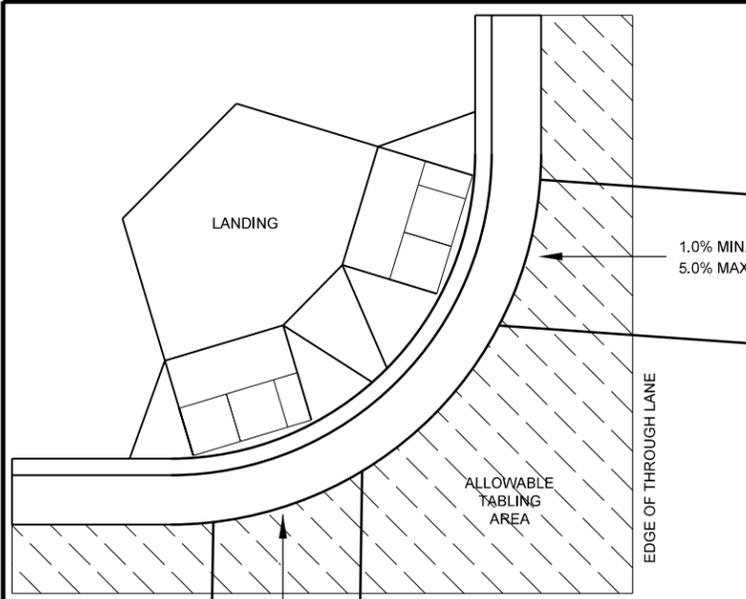
V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- Ⓢ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- Ⓛ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS, LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
- Ⓣ TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.



OPTIONAL SIDEWALK REINFORCEMENT

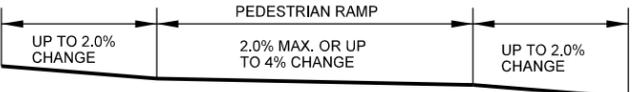
SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS

OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS



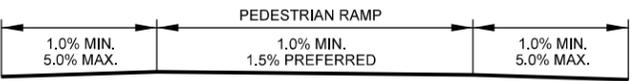
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



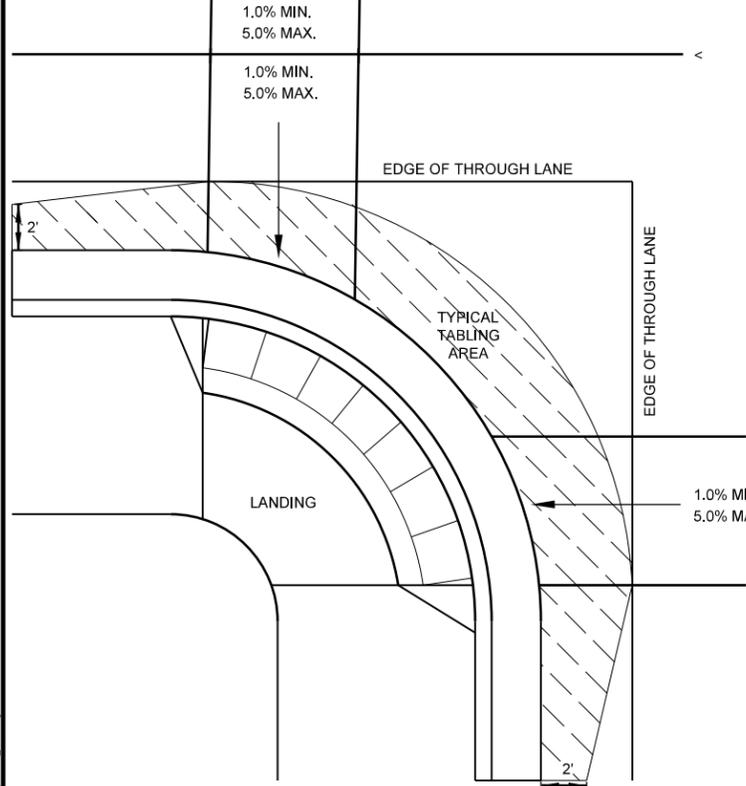
FLOW LINE PROFILE "TABLE" - FAN



FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



FLOW LINE PROFILE RAISE - FAN



CURB LINE AND ROAD CROSSING ADJUSTMENTS

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

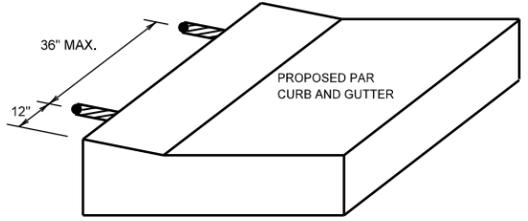
MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

- 1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

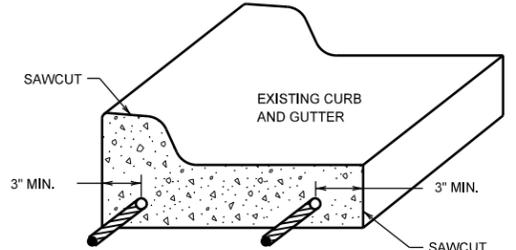
STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

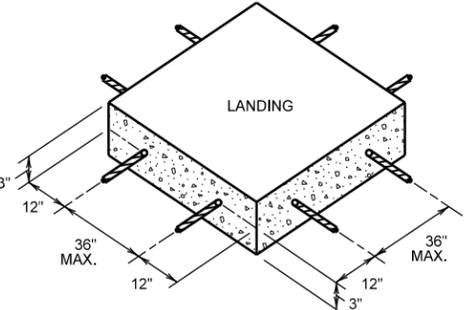
- 1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
- 2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
- 3) 5.0% RECOMMENDED MAX. FLOW LINE
- 4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL



OPTIONAL CURB LINE REINFORCEMENT DETAILS



CURB AND GUTTER REINFORCEMENT



SEPARATE LANDING POUR REINFORCEMENT

NOTES:

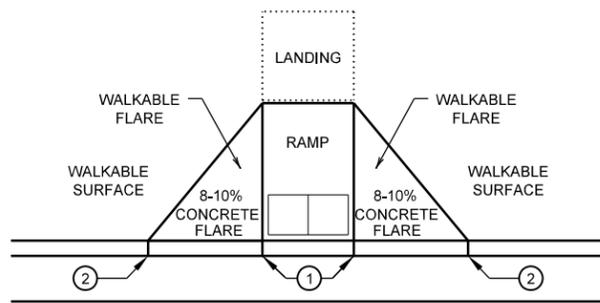
- 1) TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- 2) DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.
- 3) DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.
- 4) THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.
- 5) 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

BY: *Steven R. Emery*
DATE: 01/19/21
JOB NUMBER: 2020-1176Z

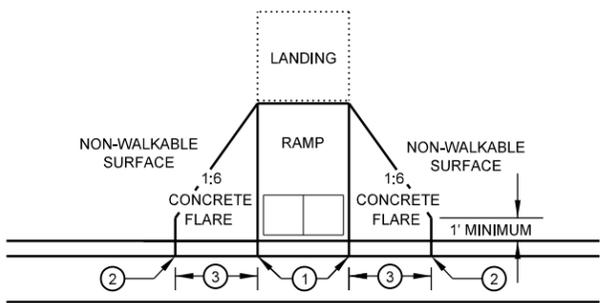
DATE	SCALE	DRAWN BY	CHECKED BY	DATE	REV#	DESCRIPTION
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2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
ADA Ramp Details

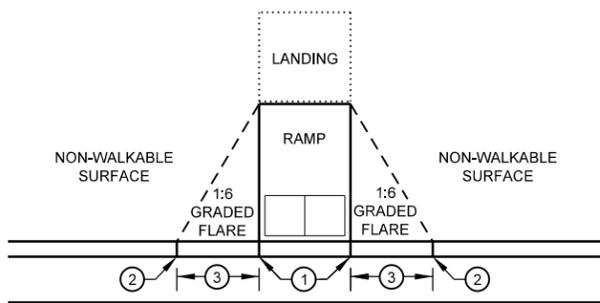
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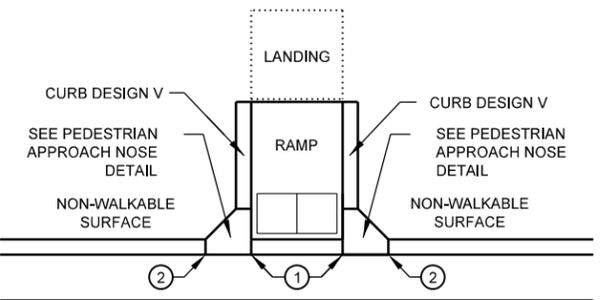
PAVED FLARES ADJACENT TO WALKABLE SURFACE



PAVED FLARES ADJACENT TO NON-WALKABLE SURFACE

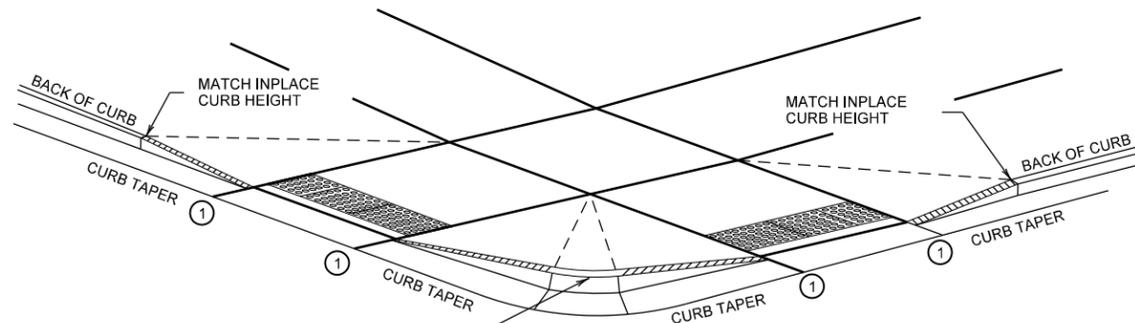


GRADED FLARES



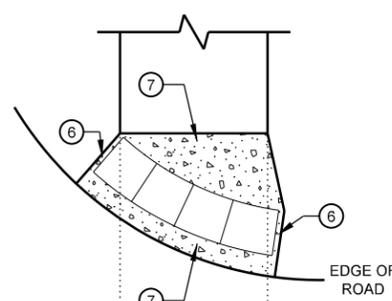
RETURNED CURB ⑤

TYPICAL SIDE TREATMENT OPTIONS ④ ⑪

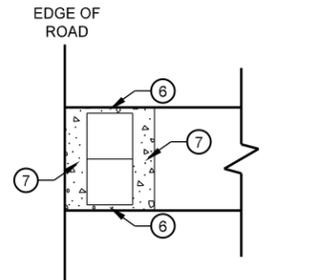


3" MINIMUM CURB HEIGHT, 4" PREFERRED (MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑧

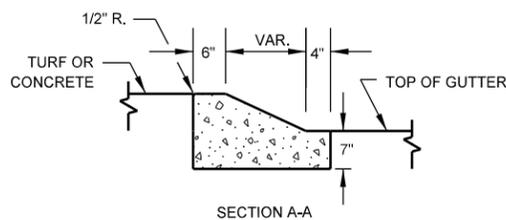
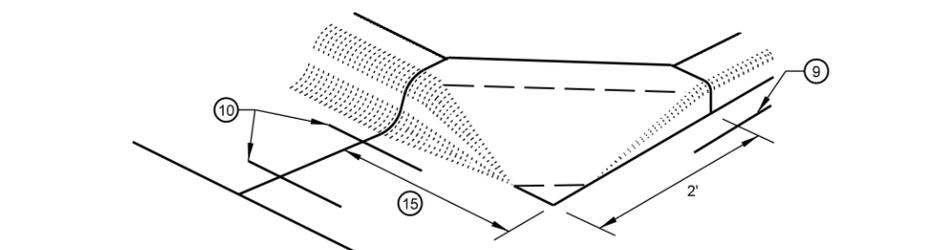


RADIAL DETECTABLE WARNING

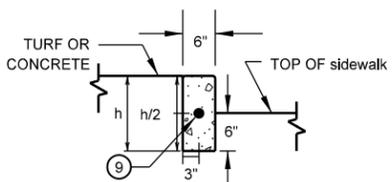


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

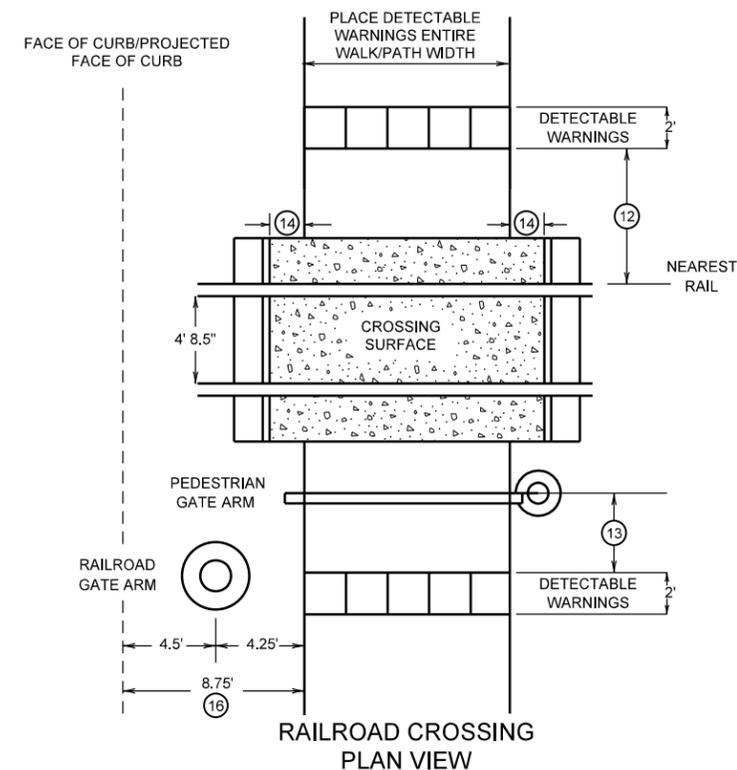


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH NOSE DETAIL (FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

NOTES:

- SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.
- A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.
- ① 0" CURB HEIGHT.
- ② FULL CURB HEIGHT.
- ③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.
- ④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
- ⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.
- ⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
- ⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
- ⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.
- ⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.
- ⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

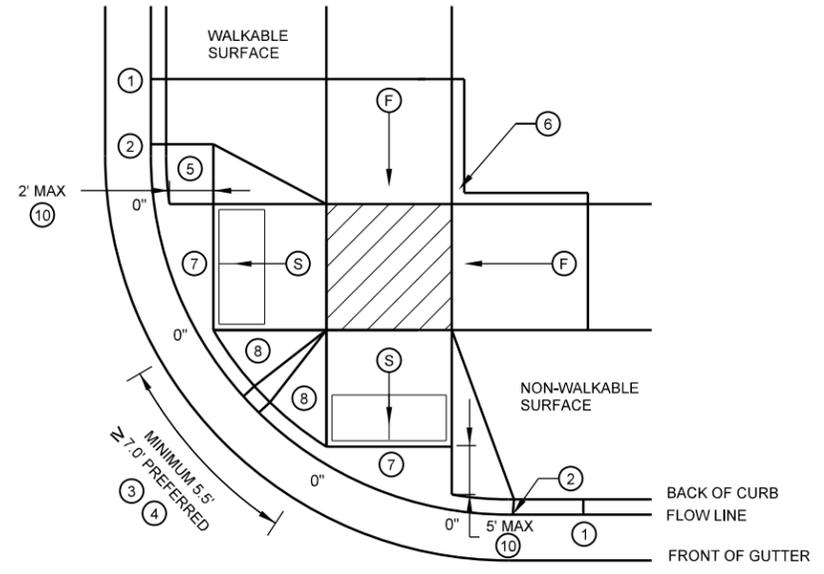
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Steven R. Emery
Steven R. Emery
DATE: 01/19/21

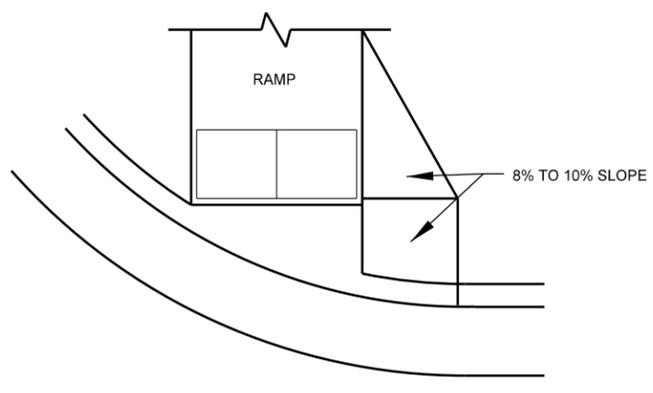
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2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
ADA Ramp Details

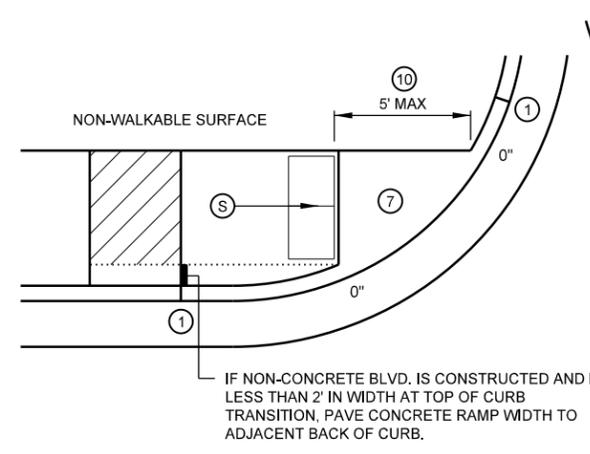
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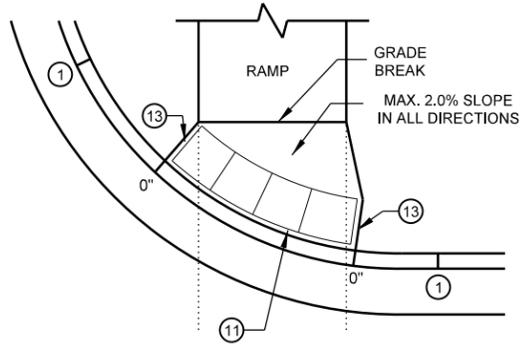
COMBINED DIRECTIONAL ⑨



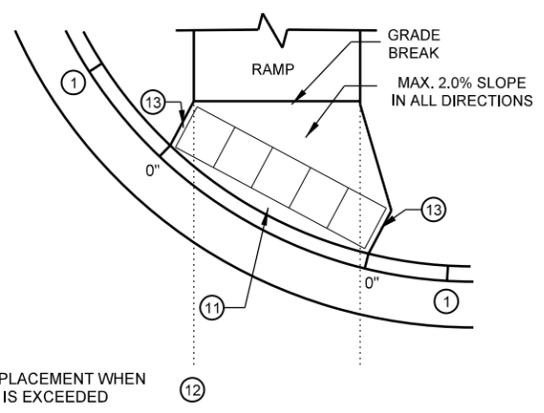
DIRECTIONAL RAMP WALKABLE FLARE



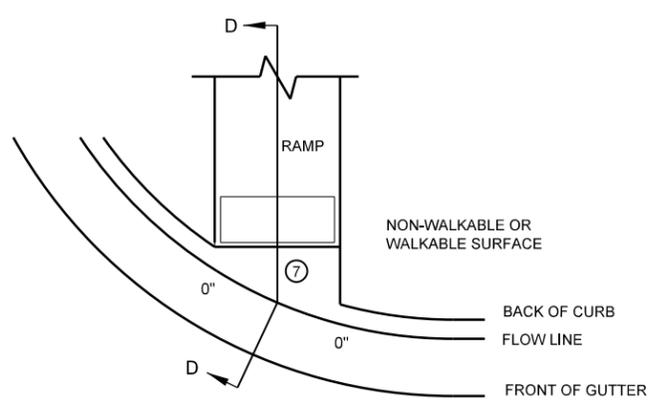
STANDARD ONE-WAY DIRECTIONAL ⑨



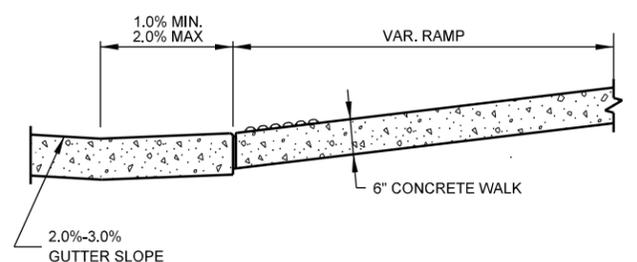
DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



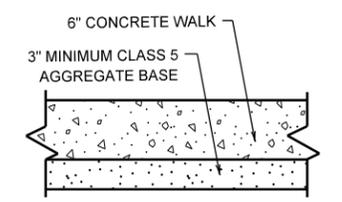
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30° OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.
- TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).
- TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.
- WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

LEGEND

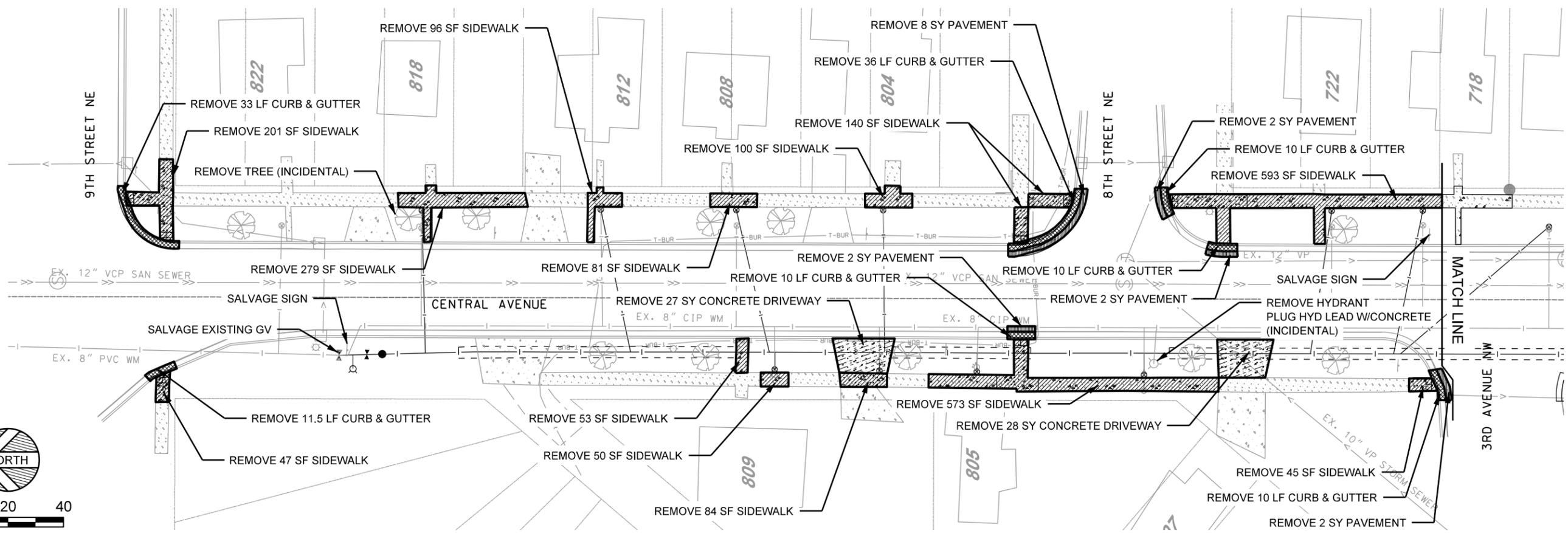
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

- ⑤ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ⑥ INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
- ⑦ LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- X" CURB HEIGHT

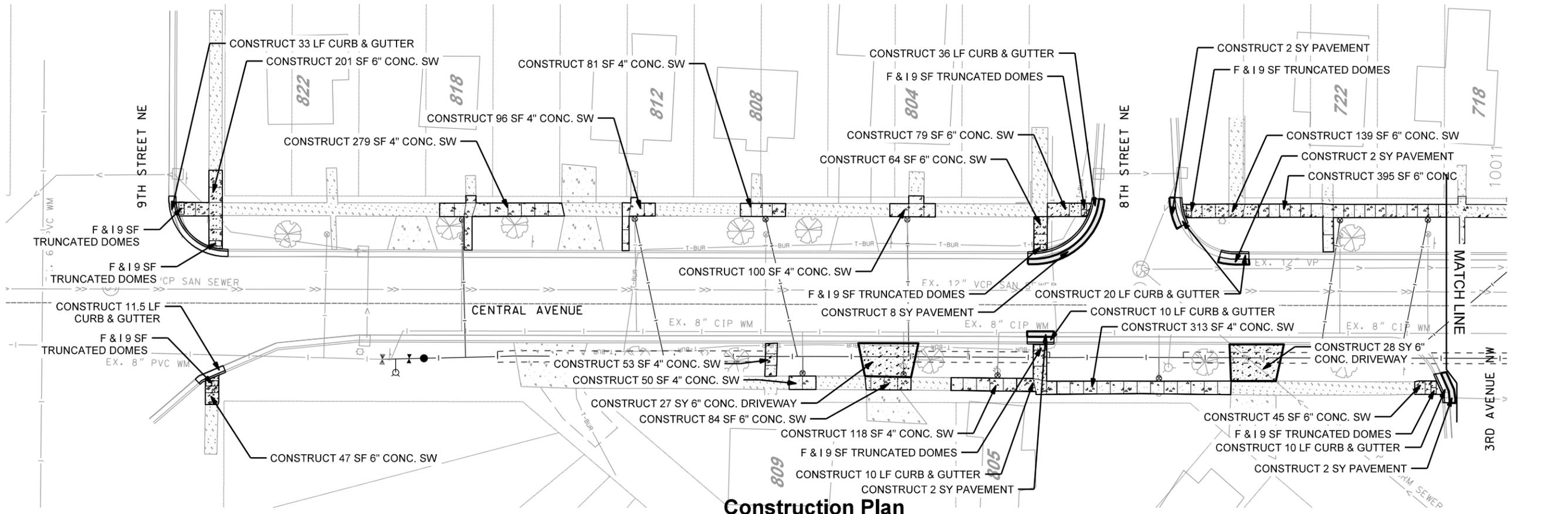
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Steven R. Emery DATE: 01/19/21 41394

REVISION DESCRIPTION	DATE	BY	CHKD

DATE: 01/19/21	SCALE: As Shown	DRAWN BY: RBE	CHECKED BY: SRE	JOB NUMBER: 2020-11762
2021 Watermain Replacement East Grand Forks Water & Light Department East Grand Forks, Minnesota				
Removal & Construction Plan				
SHEET NO. C3.0				
SHEET OF				



Removal Plan



Construction Plan

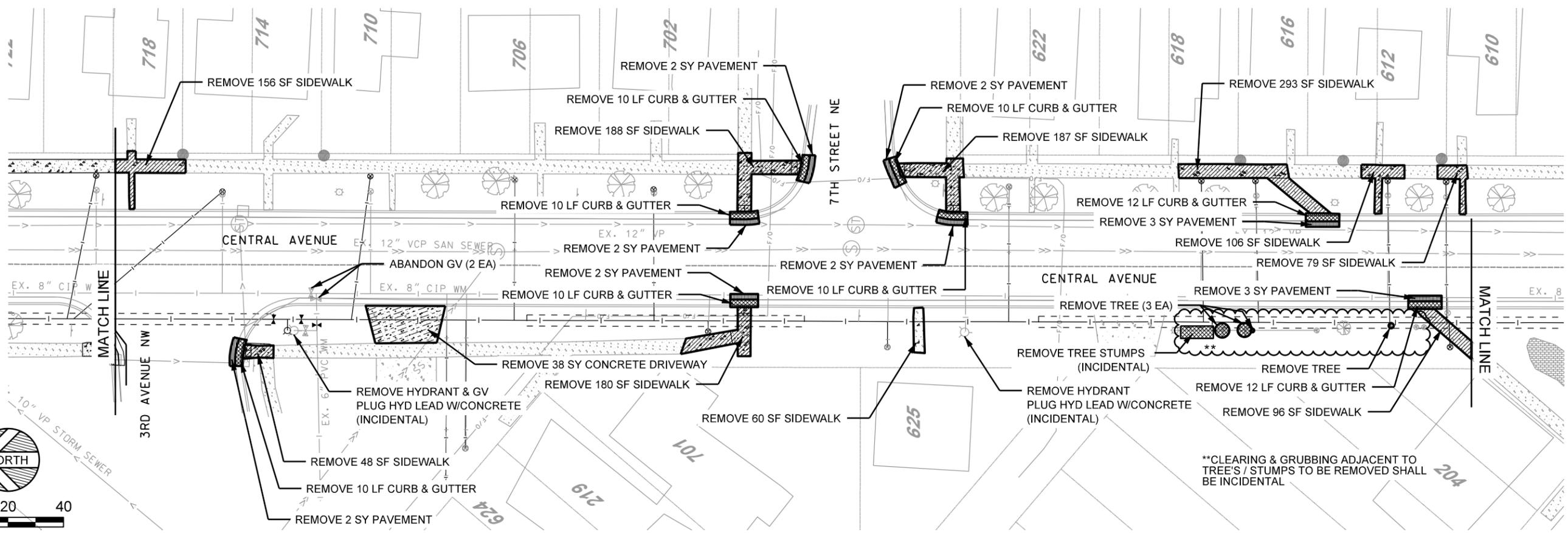
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DATE: 01/19/21 41394

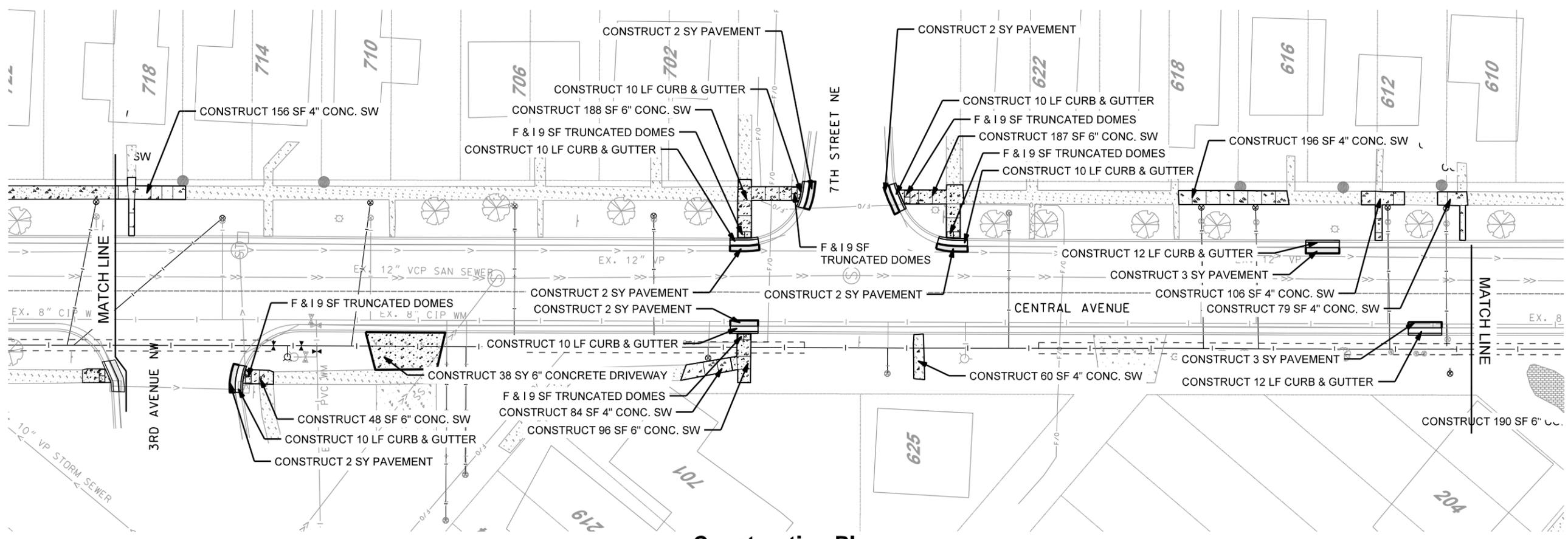
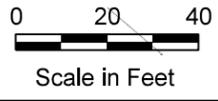
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01/19/21	As Shown	RMB	SRE	2020-11762
REVISIONS	DESCRIPTION	DATE	REV#	

2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
Removal & Construction Plan

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SHEET OF

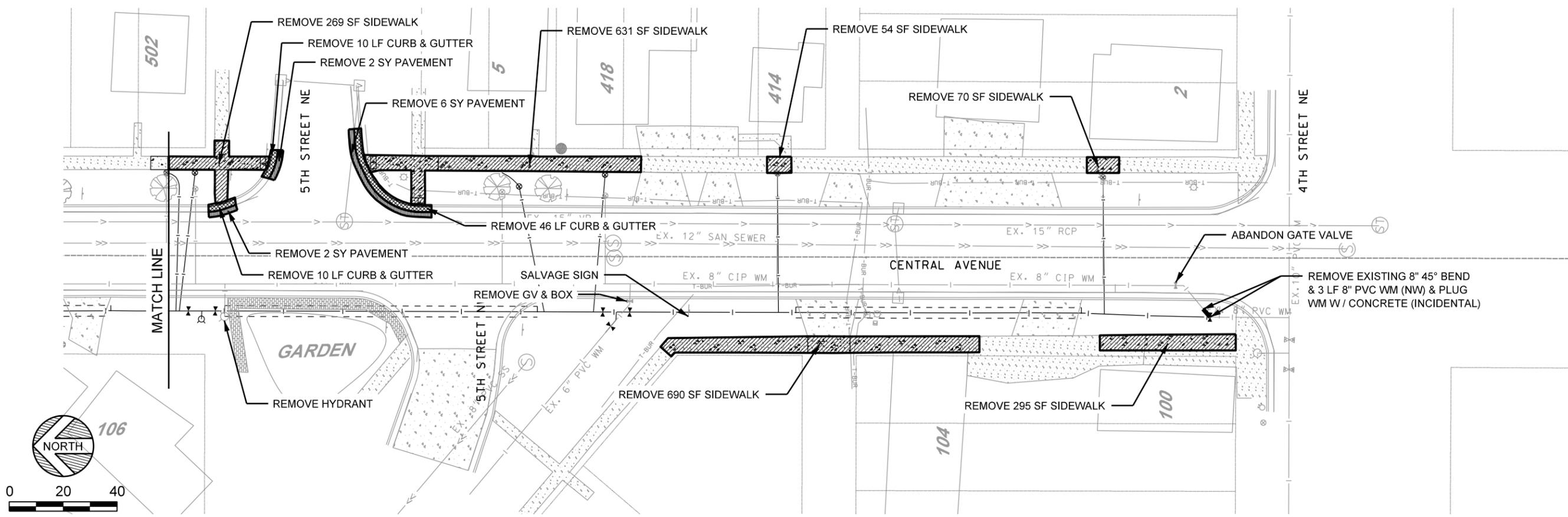


Removal Plan

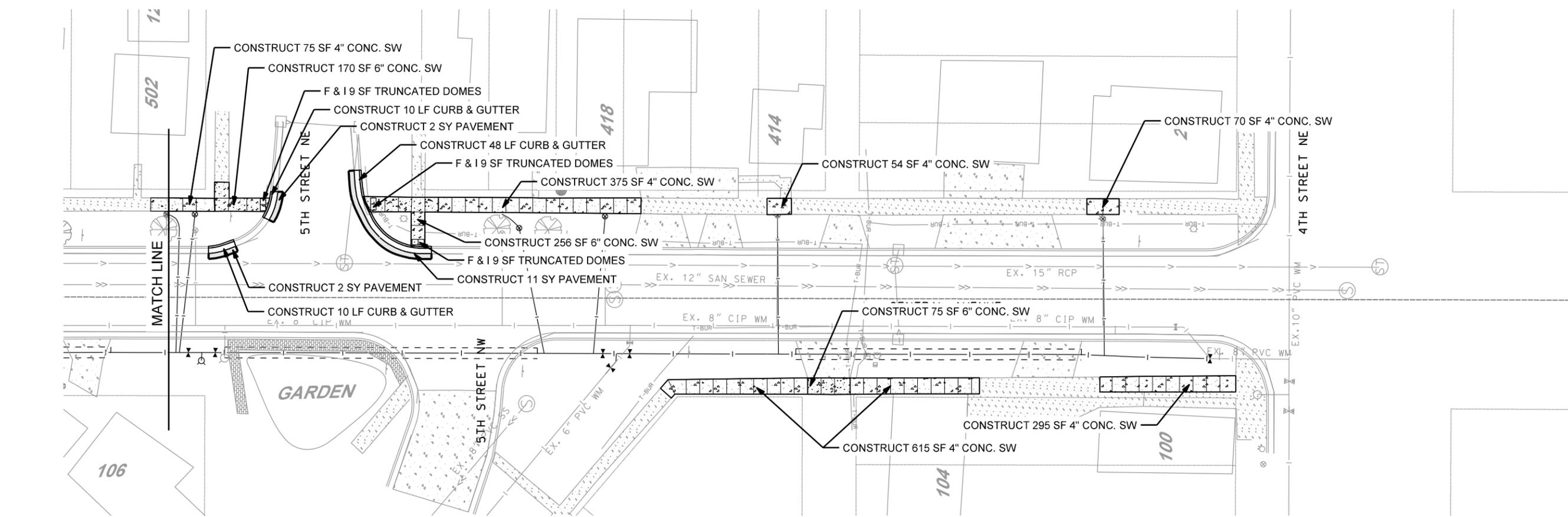


Construction Plan

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Removal Plan



Construction Plan

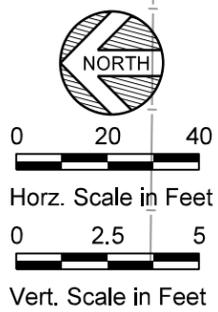
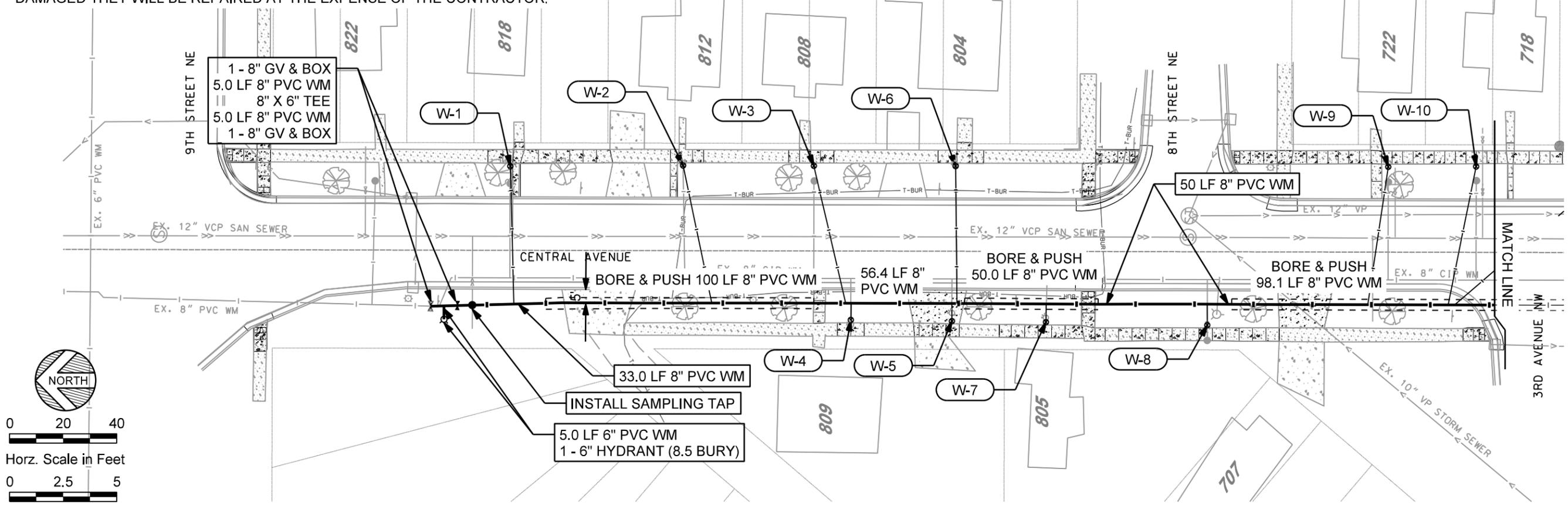
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2021 Watermain Replacement
 East Grand Forks Water & Light Department
 East Grand Forks, Minnesota
Removal & Construction Plan

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NOTE: CONTRACTOR WILL BE RESPONSIBLE FOR LOCATING EXISTING SANITARY SEWER SERVICE LINES PRIOR TO BORING OF WATERMAIN TO DETERMINE EXACT LOCATION AND DEPTH. LOCATIONS OF EXISTING SERVICES WAS OBTAINED FROM TELEVISIONING REPORTS FROM THE CITY OF EAST GRAND FORKS WHICH PROVIDES A GENERAL LOCATION BUT NOT A DEPTH. CONTRACTOR TO PROVIDE ALL NECESSARY MEANS AND METHODS TO LOCATE SERVICES. IF SEWER SERVICES ARE DAMAGED THEY WILL BE REPAIRED AT THE EXPENSE OF THE CONTRACTOR.



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815		815

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2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
Watermain Plan & Profile

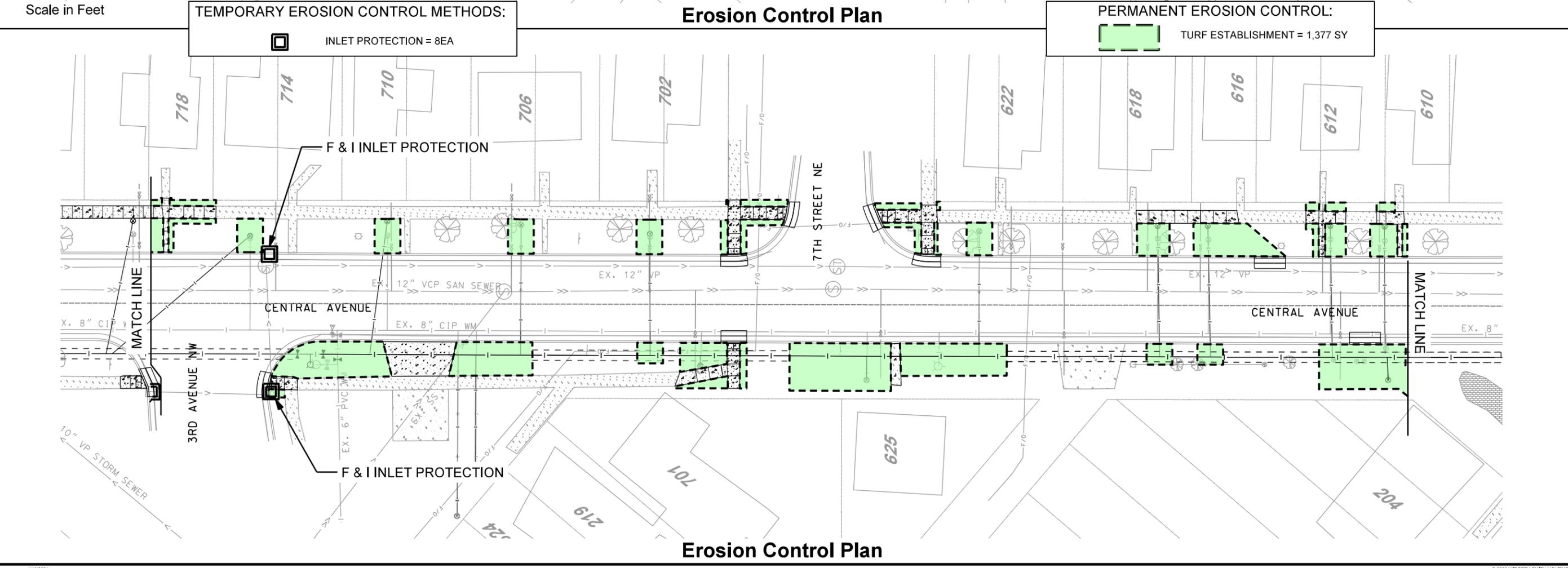
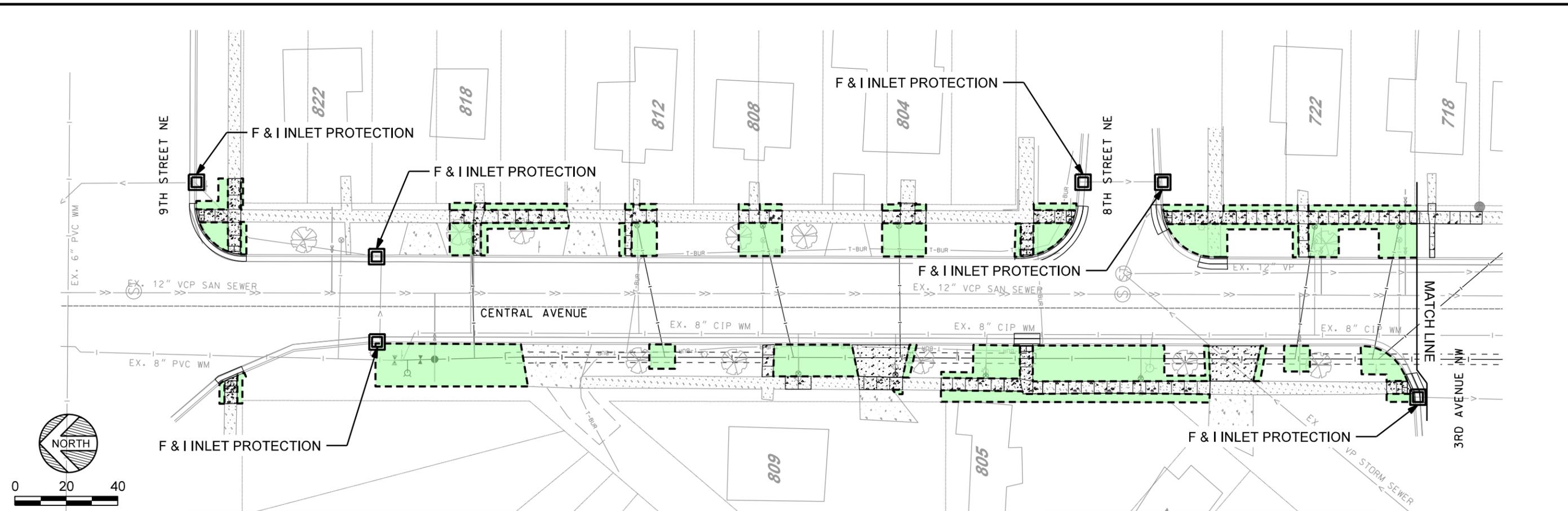
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2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
Erosion Control Plan

SHEET NO. **C5.0**
SHEET OF



TEMPORARY EROSION CONTROL METHODS:
 INLET PROTECTION = 8EA

PERMANENT EROSION CONTROL:
 TURF ESTABLISHMENT = 1,377 SY

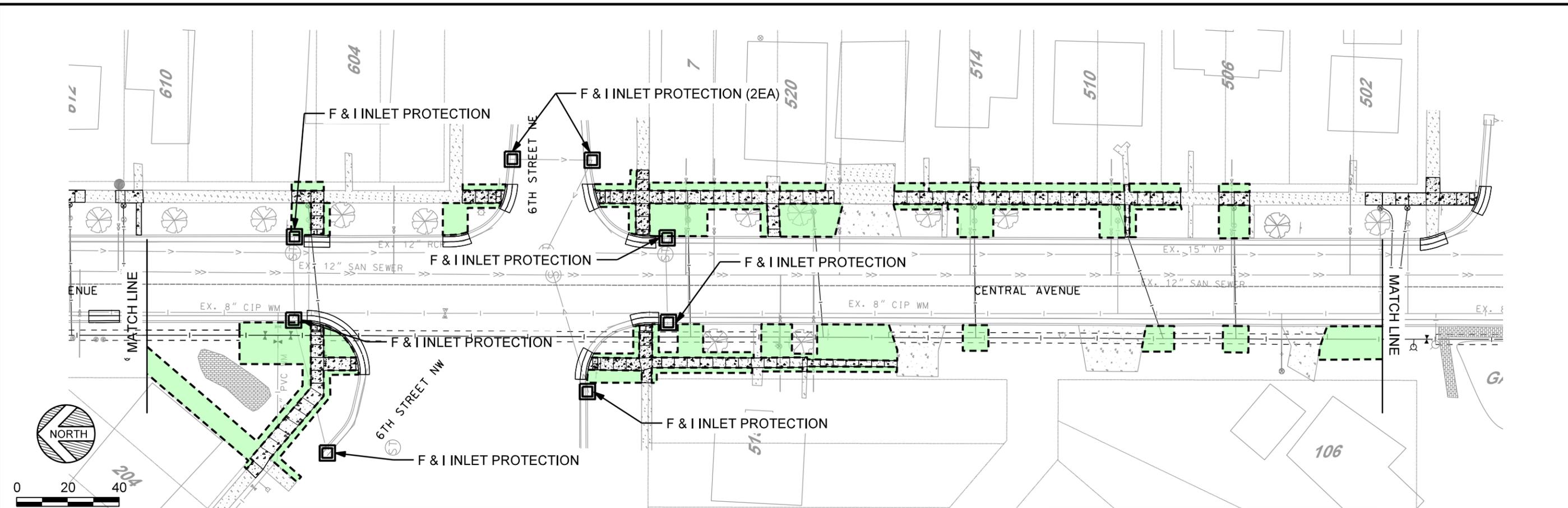
Erosion Control Plan

Erosion Control Plan



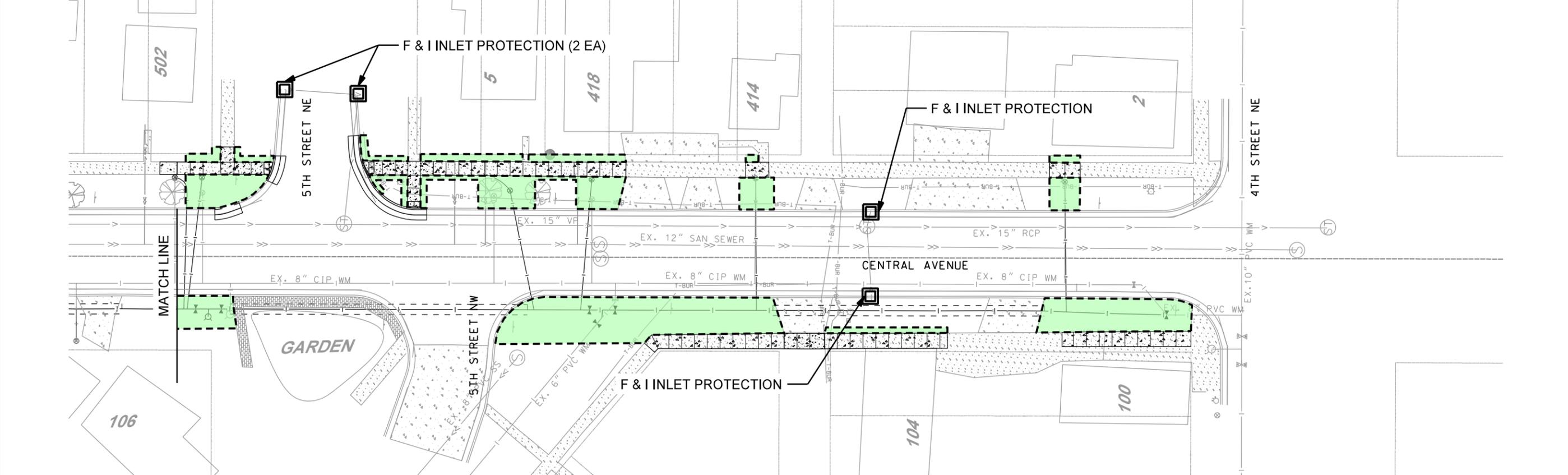
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 1/19/2021



Erosion Control Plan

<p>TEMPORARY EROSION CONTROL METHODS:</p> <p style="text-align: center;"> INLET PROTECTION = 12EA </p>		<p>PERMANENT EROSION CONTROL:</p> <p style="text-align: center;"> TURF ESTABLISHMENT = 1,243 SY </p>
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Erosion Control Plan

WIDSETH
 ARCHITECTS • ENGINEERS • SCIENTISTS • SURVEYORS

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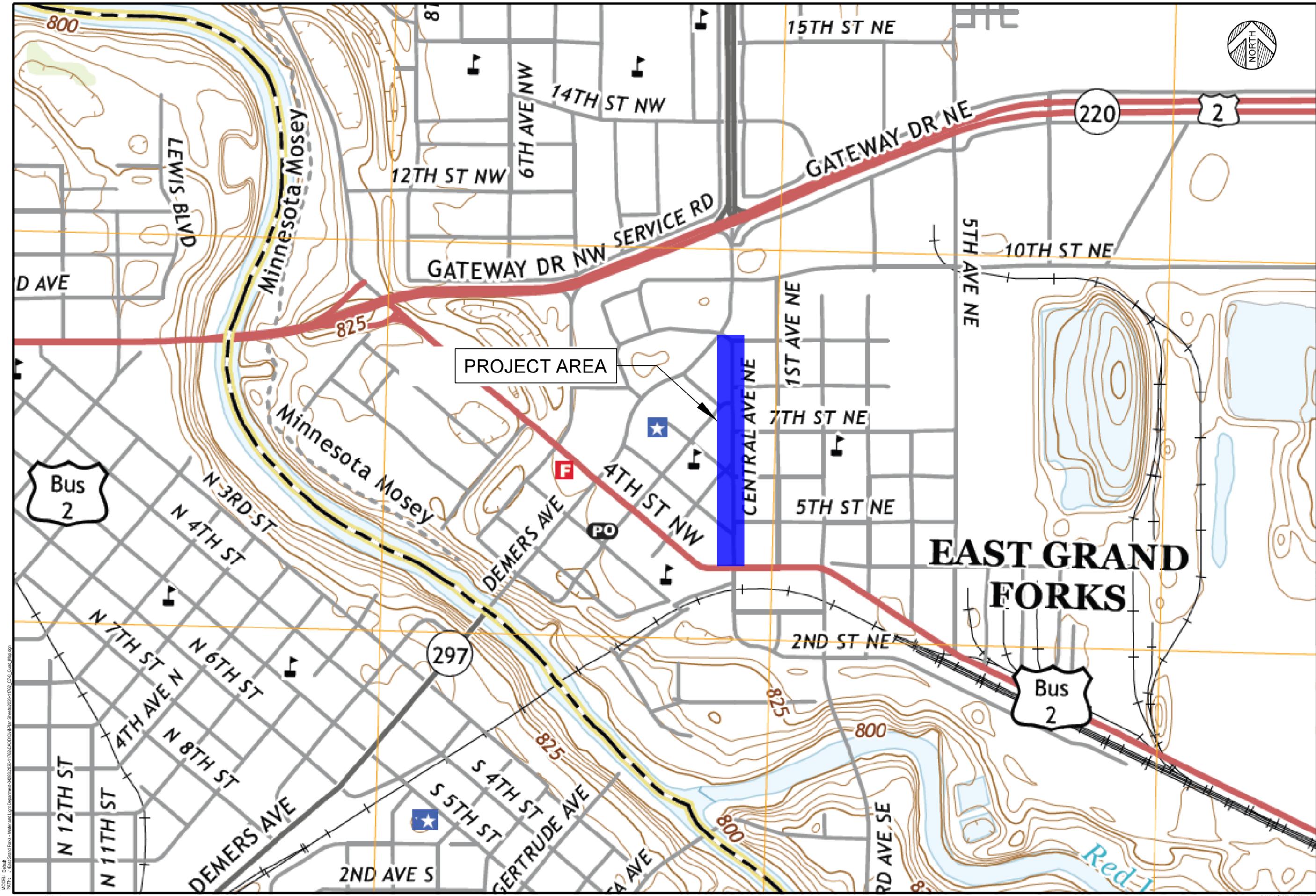
Steven R. Emery
 Steven R. Emery DATE: 01/19/21 41394

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DATE: 01/19/21 SCALE: As Shown DRAWN BY: RMB CHECKED BY: SRE JOB NUMBER: 2020-11762

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2021 Watermain Replacement
 East Grand Forks Water & Light Department
 East Grand Forks, Minnesota
Erosion Control Plan



PROJECT AREA

EAST GRAND FORKS

WIDSETH
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2021 Watermain Replacement
East Grand Forks Water & Light Department
East Grand Forks, Minnesota
USGS Quadrangle Map

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REVISIONS DESCRIPTION
DATE REV#

DATE: 01/19/21
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JOB NUMBER: 2020-11762
SHEET NO. **C7.0**
SHEET OF

MODEL: Detail
PART: East Grand Forks - Water and Light Department
DATE: 01/19/21

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STORM WATER POLLUTION PREVENTION PLAN – NARRATIVE:

Applicant: East Grand Forks Water and Light

Project Name: 2021 Watermain Replacement

Application date: TBD and will be documented in this SWPPP narrative prior to start of construction.

Nature of construction activity description:

The proposed project consists of watermain replacement by a combination of open cut and trenchless boring methods. The project will require removal and replacement of sidewalks, driveways, curb & gutter and also some minor pavement removal and replacement. The existing pervious / impervious areas will remain relatively the same, therefore, no need for any permanent stormwater management.

Existing Soil types consist of fat clays overlain by approximately 3-4" topsoil materials.

The project will be started June 2021, with construction being completed in September 2021.

Total estimated area to be disturbed by the project is:
Estimated Disturbed Area = 1.10 AC

Name of person with BMP experience who will oversee SWPPP implementation and coordinate with contractor: TBD and will be documented in this SWPPP narrative prior to start of construction.

Person, organization, or entity responsible for long term maintenance of permanent stormwater treatment system: Not Applicable for this project as there is no increase in impervious areas.

Documentation of all trained individuals:

SWPPP preparer:

Company: Widseth
Name: Steven R. Emery
Address: 1600 Central Ave NE
City, State Zip: East Grand Forks, Mn 56721
Email: steve.emery@widseth.com
Phone: 218-773-5626
Training organization/sponsor: University of Minnesota
Training date(s): January 30, 2018
Training activity/content: Design of Construction SWPPP
Instructor(s) name(s): John Chapman, Rebecca Forman

Individual overseeing implementation, revision and/or amendment the SWPPP that are available for an onsite inspection within 72 hours upon request of MPCA: TBD and will be documented in this SWPPP narrative prior to start of construction.

Company: _____
Name: _____
Address: _____
City, State Zip: _____
Email: _____
Phone: _____
Training organization/sponsor: _____
Training date(s): _____
Training activity/content: _____
Instructor(s) name(s): _____

Individual overseeing implementation, revision and/or amendment the SWPPP: TBD and will be documented in this SWPPP narrative prior to start of construction.

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Email: _____
Phone: _____
Training organization/sponsor: _____
Training date(s): _____
Training activity/content: _____
Instructor(s) name(s): _____

Individual performing or supervising the installation, maintenance and repair of BMPs: TBD and will be documented in this SWPPP narrative prior to start of construction.

Company: _____
Name: _____
Address: _____
City, State Zip: _____
Email: _____
Phone: _____
Training organization/sponsor: _____
Training date(s): _____
Training activity/content: _____
Instructor(s) name(s): _____

Installation Timing of Erosion Prevention and Sediment Control BMPs:

Erosion and sediment control BMP's must be installed as necessary to minimize erosion from disturbed surfaces and capture sediment onsite. All BMP's must conform to 2018 MNR100001 Permit 2018 sections 7, 8 and 9.

Temporary erosion control BMPs.

The General Contractor is responsible for the Erosion Prevention Practices contained in 2018 MNR100001 Permit 2018 section 8. The General Contractor must plan for and implement appropriate construction phasing, vegetative buffer strips, horizontal slope grading and other construction practices that minimize erosion. The location of areas not to be disturbed must be delineated (marked) on the development site before work begins.

BY: Steven R. Emery DATE: 01/19/21
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF IT COMPLIES WITH THE LAWS OF THE STATE OF MINNESOTA.
Steven R. Emery 41394

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				2020-11762

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East Grand Forks, Minnesota
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Examples of Temporary Erosion Control BMPs

- Poly Cover Stockpile
- Construction Phasing

Sequence of construction:

1. Install stabilized construction exits as necessary
2. Install inlet protection around all storm sewer structures / Catch Basins
3. Complete removals to accommodate watermain installation
4. Complete watermain installation including all testing
5. Complete Backfilling of all trenches
6. Replace all sidewalk, driveways, curb & gutters and pavements removed for construction
7. Complete rough grading and topsoil replacement
8. Complete Hydro-Seeding
9. When Permit termination conditions has been achieved, remove all temporary erosion and sediment control devices

Phasing must be implemented to ensure that more area than can be effectively inspected and maintained in accordance with the MNR100001 permit is not disturbed.

- Vegetation:

Temporary Sediment Control BMPs

The General Contractor is responsible for the Sediment Control Practices contained in MNR100001 Permit 2018 reference 9 of the NPDES Permit. Sediment Control Practices must be installed on all down gradient perimeters before any upgradient land disturbing activities begin. These practices must remain in place until Permit Termination Conditions have been established in accordance with MNR100001 Permit 2018 reference 13 of the NPDES Permit.

Examples of Temporary Sediment Control BMPs

- Silt Fence
 - MnDOT reference:
 - Silt fence must be preassembled, machine sliced, hand installed, super duty, or turbidity barrier type, according to plan. Materials must meet the requirements of MnDOT spec. 3886.
- Sediment Control Logs
 - MnDOT reference:
 - Sediment control logs must be Type Straw, Wood Fiber, Coir, Wood Chip, Compost, Rock, or Wood Fiber and Blanket Systems and meet the requirements of MnDOT spec. 3897.
- Crushed Rock, or Sheet Pad Construction Exit
 - Rock construction exits must be placed at all locations construction vehicles will be exiting the project area. If the contractor chooses to access the site from locations other than where temporary rock construction exits are shown on the plan, additional construction exit controls must be placed at these locations as well. If sediment tracking is discovered on adjacent streets, the sediment must be removed with a street sweeper or other approved method within one calendar day of discovery. This must be done throughout the duration of the project. The sediment may be returned to the exposed areas of the site or disposed of offsite per MPCA requirements.
- Rumble Pad Construction Exit
- Storm Drain Inlet Protection
 - Storm drain inlet protection must be placed in the areas as shown on the plan included in this SWPPP.

Permanent Erosion Cover Methods for all exposed soil areas:

- Concrete
- Bituminous
- Turf Establishment

Permanent erosion control will be achieved with a density of 70% of the native background vegetation by using Seed Mixture 25-131 at a rate of 120 lbs/ac of Pure Live Seed, Type 1 Fertilizer with a composition of 20-10-20 at a rate of 250 lbs/ac, and Hydro Mulch Materials at a rate of 2100 lbs/ac on all disturbed construction areas.

Permanent erosion control will be achieved with a density of 70% vegetation using the seed mixtures, fertilizer and stabilization methods indicated on the SWPPP on all disturbed areas.

Stormwater Mitigation Measures proposed as part of environmental, endangered species, archaeological or other required local, state or federal reviews conducted by the project.

Not applicable to this project.

Discharges to any U.S. EPA approved TMDL for the pollutants/stressors described in MNR100001 Permit 2018 reference item 23.7

There are no special or impaired waters within one mile of the project site which will receive stormwater runoff.

Permanent Stormwater Treatment System:

No Permanent Stormwater Treatment System required as part of this project.

Procedures to Amend SWPPP:

The General Contractor must amend the SWPPP as necessary to include additional requirements, such as additional or modified BMP's, designed to correct problems or address situations in accordance with MNR100001 Permit 2018 reference 6 of the NPDES Permit.

Amendments to the SWPPP:

1. Date:
2. Date:
3. Date:
4. Date:
5. Date:

Methods to Minimize Soil Compaction and to Preserve Topsoil:

The General Contractor must delineate areas that are not to be disturbed on the site. This may be done with flags, stakes, signs, silt fence, etc., and must be completed prior to the start of any grading operations. Regardless of the delineation method the General Contractor chooses to use, the General Contractor must communicate to his/her personnel and subcontractors that these areas are not to be disturbed and construction equipment (including trucks and personal vehicles) must not be allowed in these areas.

The General Contractor must avoid construction traffic and maintain the existing condition of pervious "green" areas.

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Stormwater Control Design:

Not applicable as no permanent stormwater pond design as part of this project.

Chemical Treatment Systems to Enhance Sedimentation:

• Flocculants

MnDOT reference:

- Flocculants must be applied as specified on the plan included in this SWPPP.
- Liquid, Stock, or Granular Flocculant must be used and meet requirements of MnDOT spec. 3898.
- Flocculants must be installed as per MnDOT spec. 2573.3.N.

Impervious Surfaces pre- and post-construction:

Existing Impervious = 0.25 Ac

Proposed Impervious Area = 0.23 Ac

Infeasibility Documentation Requirements:

Not applicable to this project.

Site Assessments for Groundwater or Soil Contamination:

Not applicable to this project.

Tabulated Quantities:

Item	Estimated Quantity
Storm Drain Inlet Protection	20 Each
Turf Establishment	2620 Sy

CONSTRUCTION ACTIVITY REQUIREMENTS:

Erosion Prevention Measures

- ❖ Exposed soils (including stockpiles) must have erosion protection/cover initiated immediately and completed within 14 days (or 7 days per Section 23).
- ❖ For DNR Public Waters with "work in waters restrictions" during specified fish spawning time frames, stabilization must be completed for all exposed soil areas within 200 feet of the water's edge, and draining to the water, within 24 hours during the restriction period.
- ❖ The wetted perimeter of the last 200 linear feet of ditches must be stabilized within 24 hours of connecting to a surface water or property line.
- ❖ Temporary or permanent ditches or swales that are being used as a sediment containment system during construction must be stabilized within 24 hours after no longer being used as a sediment containment system.
- ❖ Pipe outlets must have energy dissipation within 24 hours of connecting to a surface water or permanent stormwater treatment system.
- ❖ Mulch, hydromulch, tackifier, polyacrylamide, or similar erosion prevention practices cannot be used within the normal wetted perimeter of drainage ditches or swale sections with a continuous slope greater than 2%.

Sediment Control Measures

- ❖ Sediment control practices must be established on downgradient perimeters and upgradient of any buffer zones.
- ❖ Sediment control practices must be established at the base of stockpiles on the downgradient perimeter.
- ❖ Stockpiles must be located outside of natural buffers or surface waters, including stormwater conveyances (e.g., curb and gutter systems) unless there is a bypass.

- ❖ Inlet protection BMPs must be installed according to plan.
- ❖ Vehicle tracking BMPs must be established where vehicles are exiting the site to minimize street tracking. Sediment tracked onto a public street must be removed within 24 hours.
- ❖ Topsoil must be preserved unless infeasible.
- ❖ Soil compaction must be minimized.
- ❖ Discharges from BMPs must be directed to vegetated areas, unless infeasible.
- ❖ 50-foot natural buffers must be preserved or (if maintaining buffer is infeasible) redundant sediment controls must be provided when a surface water is located within 50 feet of the project's earth disturbances and drains to the surface water.

Dewatering and Basin Draining:

- ❖ If dewatering is required on the site, there must be a plan in place to prevent nuisance conditions, erosion, and inundation of wetlands.
It is anticipated that dewatering will be required during portions of the utility installation. The discharge for dewatering can be directed to the stormwater basins, but measures must be taken so that erosion does not occur at the discharge of the dewater pipe. The water must be conveyed to the basin in a non-erosive manner and must have minimal potential for erosion. Dewatering related to the construction activity must comply with MNR100001 Permit 2018 reference 10 of the NPDES Permit. Dewatering discharge that may have turbid or sediment laden discharge must be discharged to a temporary or permanent sedimentation basin on the project site whenever possible and BMP's must be implemented to prevent water containing sediment or other pollutants from being discharged to surface waters or downstream properties.
- ❖ If using filters with backwash water, backwash water must be hauled away for disposal, returned to the beginning of the treatment process, or incorporated into the site in a manner that does not erode into runoff.

Inspection Requirements:

- ❖ The SWPPP must identify the trained person (as identified in item 21.2.b) who will conduct inspections.
- ❖ Inspections must be performed once every 7 days.
- ❖ Inspections must be performed within 24 hours of a rain event greater than 0.5 inches in 24 hours.
- ❖ Inspection and Maintenance records should include:
 1. Date and time of inspection.
 2. Name of person(s) conducting inspections.
 3. Accurate findings of inspections, including the specific location where corrective actions are needed.
 4. Corrective actions taken (including dates, times, and party completing maintenance activities).
 5. Date and amount of rainfall events greater than 0.5 inch in 24 hours.
 6. Rainfall amounts must be obtained by a properly maintained rain gauge installed onsite, or by a weather station that is within one mile or by a weather reporting system.
 7. Requirements to observe any discharge that may be occurring during the inspection. Discharge should also be described and photographed.

Maintenance Requirements:

- ❖ All nonfunctional BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow.
- ❖ Perimeter control devices must be repaired, replaced, or supplemented when nonfunctional or sediment reaches one-half the height of the device.
- ❖ Temporary and permanent sediment basins must be drained, and sediment removed when the depth of sediment collected reaches one-half storage volume.
- ❖ All sediment deposits and deltas must be removed from surface waters (including drainage ways, catch basins, and other drainage systems) and the removal areas restabilized within seven days.
- ❖ Sediment on paved surfaces (e.g., sediment tracked from vehicles) must be removed within one calendar day of discovery.

MODEL - Detail - East Grand Forks - Water and Light Department - 5/23/2023 - 11762 CAD Civil Plan - Sheet 2023-11762_C7.3_SWPPP.dwg

BY: *Steven R. Emery*
DATE: 01/19/21
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