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Final Engineer's Report

Improvement of Judicial Ditch No. 15 Lyon County, Minnesota

October 2021

S15.116766

Submitted by:

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Certification

Final Engineer's Report

For

Improvement of Judicial Ditch No. 15

In

Lyon County, Minnesota

S15.116766

October 2021

I hereby certify that this plan, specification or report 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 Minnesota.

By: Shaun P. Luker
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Date: 10-17-2021

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STATE OF MINNESOTA

LYON COUNTY

IN THE MATTER OF THE PETITION FOR AN IMPROVEMENT TO JUDICIAL DITCH NO. 15 IN LYON COUNTY, MINNESOTA:

In October 2018, the Joint Drainage Authority accepted a petition for the improvement of Lyon-Redwood County Joint Judicial Ditch No. 15 (JD 15) in accordance with Minnesota Statute 103E.215. After authorization, supplemental field surveys were performed and combined with survey work completed in 2011, to obtain field elevations and establish an alignment for a proposed drain tile improvement as well as to evaluate the outlet for the system. This report summarizes the findings of the research, surveys and analysis and is submitted for the consideration by the Ditch Authority.

I. LOCATION AND SCOPE OF IMPROVEMENT

The petitioned improvement area of Judicial Ditch No. 15 lies within and provides drainage to portions of Sections 1, 2, 11, 12, 13, 14, 23 and 24 of Clifton Township in Lyon County and portions of Sections 7 and 18 of Westline Township in Redwood County. The system consists of a Main tile about 3.8 miles in length and eight branches that vary in length from approximately 0.3 miles to 2.6 miles. The outlet for this tile system is into the Main open ditch of JD 15 in Section 18 of Westline Township. Main open ditch of JD 15 then continues northeast and outlets into Clear Creek in Section 10 of Westline Township in Redwood County. The system is located about 2 miles west of Milroy, Minnesota. The total estimated watershed for the tile system from Lidar contour data, is 2,343 acres.

The proposed improvement of Judicial Ditch No. 15 includes the replacement of the Main tile along with Branches 22, 23, 24, 24A, 25, 25A, 26 and Branch 27. Exhibit 1 shows the general location of JD 15 and the proposed improvement. Exhibit 2 is the copy of the petition for the improvement.

Field survey information was collected by Bolton & Menk, Inc. in May 2011 and November 2018. The survey included GPS locations and elevations for the outlet of the tile and for private and public intakes on the system. The tile system design utilized Lidar data, provided by the Minnesota Department of Natural Resources. This data, obtained from an aerial flight, results in contours of equal elevation at 2' vertical intervals.

Other information used for this report included plans obtained from the Lyon County files. However, the plans do not provide accurate location and elevation data. If the project proceeds to construction, performing exploratory excavations at key locations to verify the existing tile sizes, locations, and elevations is recommended.

II. EXISTING DITCH SYSTEM

Public records regarding the Judicial Ditch No. 15 system were reviewed from Lyon County. This information provides a limited history of the JD 15 system.

JD 15 was petitioned for establishment in 1916 and thereafter constructed. The Main tile, and Branches 22 through 27 were included in this petition.

The original benefits for the ditch system in Lyon County were \$62,369. It is our understanding that a redetermination of benefits is currently being performed.

A repair to clean the Main open ditch to the elevation that it was originally constructed at occurred in 1958.

III. CONDITION OF THE EXISTING DRAINAGE SYSTEM

The existing tile system consists largely of clay tile that was constructed around 1916. Determining the condition of the existing tile is important for several reasons. The first reason is deficiencies in the tile, such as offset joints, misaligned pipe, root intrusion, and broken or collapsed pipe all cause water to flow slower through the tile than originally designed. The second reason, is that deteriorated pipe reduces the reliability of the system. A third reason is that a deteriorated tile system will incur increasingly greater maintenance costs to keep the system functioning.

These reasons contribute to determining if the existing drainage system needs repair. Repairing a drainage system means to restore all or part of a drainage system as nearly as practicable to the same hydraulic capacity as originally constructed and subsequently improved. It should be noted that Minnesota Statute 103E.705 means that the Drainage Authority has an affirmative duty to maintain the drainage systems located in its jurisdiction, and to provide the repairs necessary to make the drainage system efficient. As it pertains to the improvement process, the repair costs may be added as a benefit to offset the cost of the improvement, as discussed in section VII.K of this report.

Lyon County has televised portions of the existing tile system petitioned for improvement to help determine the condition of the existing tile. Images from the televising are included in Exhibit 5. As can be seen in Exhibit 5, the televising noted many offset and separated joints, cracked and broken pipe, tree roots, dissimilar pipe materials used for repairs, and other issues.

The typical roughness coefficient for drain tile is 0.013. However, this value can range as high as 0.017 for pipe with many offset joints, root intrusion, and other issues. A roughness coefficient of 0.016, which would be appropriate for the tile televised, reflects a 19% decrease in the capacity of the pipe. For a 12-inch diameter tile, an offset joint can reduce the open area and capacity of the pipe by up to 10%. In one location, a corrugated metal pipe (CMP) was used to repair a section of pipe. A CMP pipe has a typical roughness coefficient of 0.025, which is a 48% decrease in the capacity of the pipe.

Because of the televising evidence, and the effect that the observed deficiencies have on the capacity of the tile, we have determined that the existing JD 15 tile system within the improvement area needs repair.

IV. CAPACITY OF EXISTING DRAINAGE SYSTEM

The portion of the JD 15 system proposed to be improved consists of underground tiles. From reports of the petitioners, the system is not able to adequately drain the JD 15 watershed, resulting in extended ponding in portions of the watershed. This ponding results in crop stress and crop loss. Lyon County has televised portions of the existing tile system. Because of this limitation of the drainage system, the petitioners have now requested that the drainage system be improved.

As a way of evaluating the capacity of the existing tile system, an analysis has been performed of the existing system using standard engineering methods. The capacity of the existing tile was estimated using the Manning equation, assuming the original hydraulic efficiency of the system as constructed and subsequently improved. In other words, the analysis of the existing system is of the capacity as established in the original design of the system based on existing plans and documentation. Tile sizes and grades are based on original design plans supplemented with limited field data collected through tile intakes and general land grades. The amount of drainage needed for modern crop production was compared to standards recommended by the Natural Resource Conservation Service (NRCS). These standards recommend drainage of row crops in mineral soils, where surface water intakes are provided, that a modern drainage system should be able to convey 1/2 of an inch of runoff per day. Watershed areas have been estimated using DNR Lidar maps. Table 1 shows the results of this analysis.

Table 1: Original Established System Tile Capacity

Tile/Branch	Location	Drainage Area (Acres)	NRCS Flow (CFS) 1/2"/Day	Existing Tile Size (Inches)	Existing Tile Grade (%)	Calculated Tile Capacity (CFS) n=0.013	Calculated Coefficient (In. Per Day)
JD 15 Main	South of 200th Street	5	0.11	6	0.15	0.22	1.04
	North of 200th Street	26	0.55	6	0.15	0.22	0.20
	Station 600+00	49	1.03	8	0.45	0.81	0.39
	Center Sec 11	180	3.78	10	0.45	1.47	0.19
	NE Sec 11	295	6.20	12	0.32	2.02	0.16
	West of CSAH 11	314	6.60	14	0.07	1.43	0.11
	Confluence Br. 27	419	8.80	15	0.06	1.59	0.09
	Prior to Br. 26	499	10.48	15	0.06	1.59	0.08
	Confluence Br. 26	617	12.96	16	0.06	1.88	0.07
	Prior to Br. 25	694	14.58	16	0.06	1.88	0.06
	Confluence Br. 25	1002	21.05	18	0.06	2.58	0.06
	Confluence Br. 24	1119	23.51	18	0.06	2.58	0.05
	South of 260th Street	1346	28.28	24	0.06	5.56	0.10
	Prior to Br. 22	1389	29.18	24	0.06	5.56	0.10
	Confluence Br. 22	1532	32.18	30	0.06	10.07	0.16
	Outlet	1569	32.96	30	0.04	8.23	0.12
Branch 22	South of 260th Street	112	2.35	8	0.10	0.38	0.08
	Outlet to Main	143	3.00	9	0.10	0.52	0.09
Branch 23C1	Br. 23C1	7	0.15	6	0.10	0.18	0.60
Branch 23C	South of CR 32	28	0.59	8	0.10	0.38	0.33
	Prior to Branch 23	35	0.74	8	0.10	0.38	0.26
Branch 23	East of CSAH 11	66	1.39	8	0.10	0.38	0.14
	West of CSAH 11	175	3.68	8	0.10	0.38	0.05
	North of CR 32	202	4.24	8	0.10	0.38	0.05
	Confluence with Br. 23C	237	4.98	10	0.10	0.69	0.07
	Confl. Br. 23A & B	418	8.78	14	0.10	1.70	0.10
	West of CSAH 11	490	10.29	15	0.10	2.05	0.10
	East of CSAH 11	669	14.05	15	0.10	2.05	0.07
Center Sec 13	773	16.24	16	0.10	2.43	0.07	
Branch 24A	Prior to Branch 24	55	1.16	6	0.10	0.18	0.08
Branch 24	Prior to Branch 24A	50	1.05	7	0.10	0.27	0.13
	Confluence with Br.24A	117	2.46	8	0.30	0.66	0.14
Branch 25A	South of 260th Street	30	0.63	6	0.10	0.18	0.14
Branch 25	South of 260th Street	55	1.16	7	0.10	0.27	0.12
	West of CSAH 11	216	4.54	12	0.10	1.13	0.12
	E Line Sec 11	239	5.02	12	0.10	1.13	0.11
Branch 26	NE 1/4, Sec 11	64	1.34	7	0.10	0.27	0.10
	E Line Sec 11	118	2.48	8	0.10	0.38	0.08
Branch 27	Outlet to Main	105	2.21	8	0.15	0.47	0.11

From Table 1, the main tile can drain the lands within the watershed at rates ranging from 0.05” to 0.39” per day. The limiting capacity in the main of 0.05” per day is near Branches 24 and 25. This bottleneck in the system throttles the capacity of the upstream tiles down to 0.05” per day. When compared to the recommended standard of 1/2” (0.5”) per day, in its originally constructed condition, the main tile is delivering less than 10% of the recommended flow. The lateral branches can drain respective watersheds at rates ranging from about 0.05” per day to 0.60” per day, with the majority being 0.14” per day or less. Thus, as constructed, most of the system provided inadequate capacity for the efficient production of row crops. Since there is televising evidence that the pipe system is in need of repair, the system is delivering even less flow than has been calculated.

V. DISCUSSION OF IMPROVEMENT

As noted earlier, the petitioners for the Improvement of JD 15 have requested the consideration of construction of an improved tile system to increase the capacity. A preliminary survey and hydrologic and hydraulic analysis of such a drainage system was performed to establish preliminary grades and depths for the tile system, to determine quantities for construction of such a system, to determine the size of proposed tile lines and analyze the outlet. General observations and results of the analysis are summarized as follows:

A. DESCRIPTION

As shown in Exhibit 1, the proposed Improvement consists of 6-inch to 48-inch diameter tile to replace the function of the existing JD 15 tile system from the outlet to the upper end. CSAH 11 and CSAH 6 road crossings are proposed to be completed by trenchless installation, while crossing of Township roads will be by open trench methods with the road surface restored with class 5 gravel. The new tile will replace existing tile. The new tile will be constructed at a lower elevation than existing tile to allow all existing tiles to be connected to the new tile.

B. DESIGN DATA

The proposed grades for the tile improvements are shown on Exhibit 1 and vary from 0.04% to 1.5%. The type of pipe should be used for the construction will be bid as a contractor option as follows:

1. Dual Wall Polyethylene Drain Tile meeting the requirements of the American Society for Testing Materials F 2648. Pipe will be bedded in granular material as shown on Exhibit 1. Non-perforated pipe will be used where the tile is to be greater than 6 feet deep, and perforated pipe will be used where the tile is to be less than 6 feet deep. The perforated pipe will include a drain tile sock or micro perforations/slots to avoid granular infiltration into the pipe. An option would be provided for the contractor to shape the bottom of the trench to conform to the pipe and eliminate some of the granular bedding if the pipe manufacturer would warrant the material installation.
2. Polypropylene pipe conforming to the requirements of ASTM F2736 and AASHTO M330 with a minimum pipe stiffness of 46 psi in accordance with ASTM D2412.
3. Reinforced concrete pipe meeting requirements of MnDOT Specification 2501, with joints being covered with geotextile fabric.
4. Polypropylene pipe or RC tile is proposed for all diameters equal to or larger than 42-inch diameter. Branches that are 36-inch diameter or less in size will be allowed to be Dual Wall Polyethylene Drain Tile. In areas where less than four feet of cover is available over the pipe or depths greater than allowed for Dual Wall tile, these two “Heavy Duty” tiles will be specified.

The criterion for design of the tile system size is based on Natural Resource Conservation Service (NRCS) methodology. The design coefficient recommended by the NRCS for

drainage systems where row crops are raised on mineral soils, and open intakes are placed on the tile, is 1/2” per day. In other words, the system should be able to drain the amount of water produced by approximately 1/2” of runoff over the entire watershed in one day. Since the Improvement will serve several areas which are depressional in nature, this design criterion was selected.

Table 2: Proposed Tile Capacity

Tile/Branch	Location	Drainage Area (Acres)	NRCS Flow (CFS) 1/2”/Day	Proposed Tile Size (Inches)	Proposed Tile Grade (%)	Calculated Tile Capacity (CFS) n=0.012	Calculated Coefficient (In. Per Day)
JD 15 Main	North of 200th Street	26	0.55	8	0.30	0.72	0.66
	Station 600+00	49	1.03	10	0.54	1.75	0.85
	Station 584+00	81	1.70	12	0.20	1.73	0.51
	Center Sec 11	180	3.78	18	0.10	3.61	0.48
	NE Sec 11	295	6.20	24	0.06	6.02	0.49
	West of CSAH 11	314	6.60	30	0.04	8.91	0.68
	Confluence Br. 27	419	8.80	30	0.04	8.91	0.51
	Prior to Br. 26	499	10.48	36	0.04	14.49	0.69
	Confluence Br. 26	617	12.96	36	0.04	14.49	0.56
	Prior to Br. 25	694	14.58	36	0.04	14.49	0.50
	Confluence Br. 25	1002	21.05	42	0.04	21.86	0.52
	Confluence Br. 24	1119	23.51	48	0.04	31.21	0.66
	South of 260th Street	1346	28.28	48	0.04	31.21	0.55
	Prior to Br. 22	1389	29.18	48	0.04	31.21	0.53
	Confluence Br. 22	1532	32.18	48	0.04	31.21	0.48
	Outlet	1569	32.96	48	0.04	31.21	0.47
Branch 22	South of 260th Street	112	2.35	15	0.10	2.22	0.47
	OL to Main	143	3.00	18	0.10	3.61	0.60
Branch 23	East of CSAH 11	66	1.39	12	0.15	1.50	0.54
	West of CSAH 11	175	3.68	15	0.30	3.84	0.52
	North of CR 32	202	4.24	18	0.15	4.42	0.52
	Confluence with Br 23C	237	4.98	24	0.10	7.77	0.78
	Confl. Br. 23A & B	418	8.78	24	0.15	9.52	0.54
	West of CSAH 11	490	10.29	30	0.10	14.09	0.68
	East of CSAH 11	669	14.05	30	0.10	14.09	0.50
	Center Sec 13	773	16.24	30	0.15	17.26	0.53
Branch 24A	Prior to Branch 24	55	1.16	10	0.25	1.19	0.51
	Prior to Branch 24A	50	1.05	8	0.60	1.02	0.48
Branch 24	Confluence with Br 24A	117	2.46	12	0.40	2.45	0.50
Branch 25A	South of 260th Street	30	0.63	8	0.30	0.72	0.57
	Grade Break	30	0.63	12	0.10	1.22	0.97
Branch 25	South of 260th Street	55	1.16	10	0.30	1.30	0.56
	West of CSAH 11	216	4.54	18	0.20	5.10	0.56
	E Line Sec 11	239	5.02	24	0.10	7.77	0.77
Branch 26	NE 1/4, Sec 11	64	1.34	10	0.50	1.68	0.63
	E Line Sec 11	118	2.48	15	0.15	2.72	0.55
Branch 27							
	Main	105	2.21	15	0.10	2.22	0.50

The capacity of the proposed tiles is shown in Table 2. Table 2 also shows the resulting runoff coefficient provided for the watershed served.

Also included as part of the project will be provisions to strip and replace the topsoil on the trench area, to provide riprap as erosion protection at the outlet, and to construct several intakes on the system. The detail sheet C1.01 in Exhibit 1 provides more information on several of these items.

C. TILE SYSTEM DEPTH

Exhibit 1 shows profile views for the proposed tile system. The minimum and maximum depths of cut to the flow line of the pipes are as shown on Table 3.

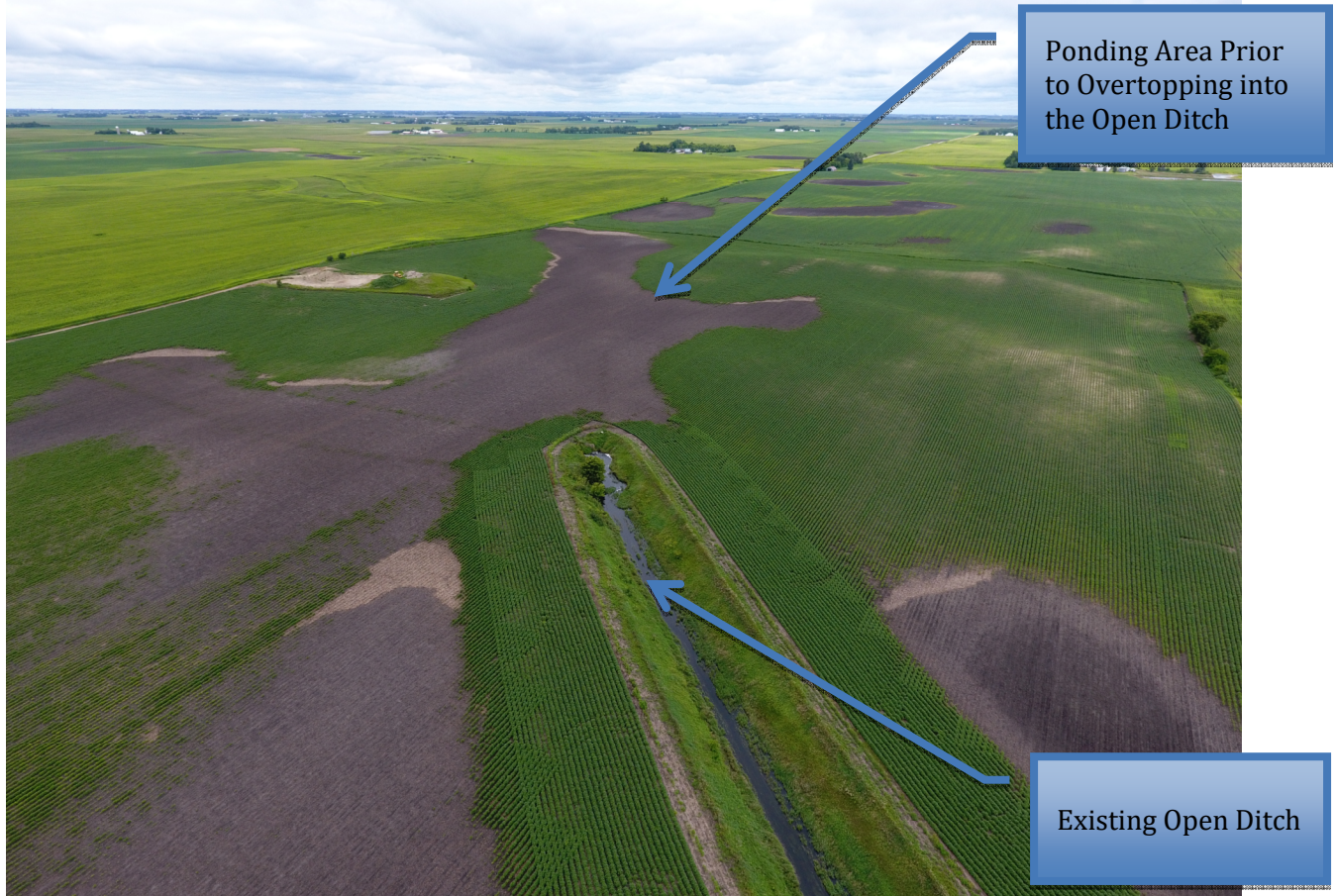
Table 3: Depth of Proposed Tile		
Tile Branch	Minimum Depth	Maximum Depth
JD 15 Main	5.5'	12.9'
Branch 22	8.0'	14.6'
Branch 23	5.2'	17.7'
Branch 24	8.0'	15.8'
Branch 24A	6.3'	14.1'
Branch 25	5.8'	14.7'
Branch 25A	5.7'	11.5'
Branch 26	5.2'	12.5'
Branch 27	6.1'	10.6'

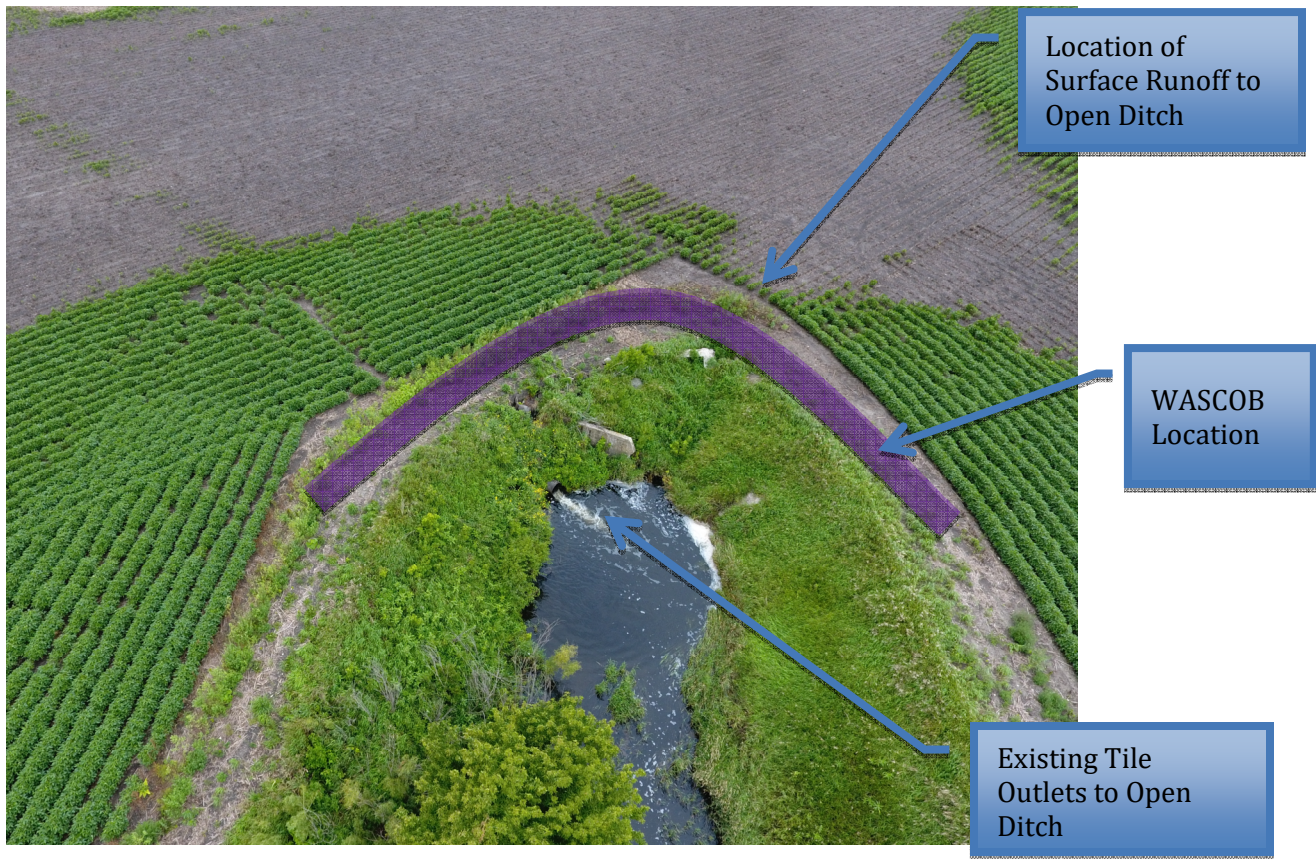
D. WATER AND SEDIMENT CONTROL BASINS

Exhibit 1 shows the locations for proposed water and sediment control basins (WASCOB). From the Agricultural Best Management Practices Handbook for Minnesota, “WASCOBs consist of an embankment across the slope of a field or minor waterway to temporarily detain and release water through a piped outlet or through infiltration. They are constructed perpendicular to the flow direction. The key benefit of WASCOBs are detaining water from contributing areas, inducing sedimentation and controlling the release of water, thereby reducing the erosive power of the water downstream.”

The proposed basins will temporarily store overland runoff from the watershed. Four basins are proposed to be constructed by constructing berms across natural draws in the land. Details regarding each basin are as shown in Table 4. The slopes on the berms in agricultural fields will be at 1V:40H or flatter so that the berms can still be farmed. The material used to construct these berms will come from the excess tile trench material that is generated by the improvement. These berms will create storage for runoff, and will reduce the peak flows discharged to the JD 15 Main Open Ditch.

Table 4: Proposed WASCOB Summary						
Location	Upstream Landowner	Top Width (Feet)	Overflow Elevation	Existing Ground Elevation	Storage Created (Acre-feet)	10-Year Event Ponding Time (Hrs.)
Main Open Ditch Banks	Bitker	10	1104.0	1103.0	15.9	30
Main Tile – West line Section 18	Christianson & Brey	40	1105.0	1103.2	27.7	40
Branch 23 – West Line Section 18	Christiansen	50	1105.0	1103.1	11.6	30
Branch 23 – Near Center of Section 23	Christiansen	100	1114.0	1111.9	3.5	22





VI. ALTERNATIVE SOLUTIONS

Several other alternative solutions to the proposed Improvement have been evaluated as part of this study.

A. “DO NOTHING” ALTERNATIVE

The “Do Nothing” Alternative was discussed. However, petitioners have experienced poor drainage throughout the drainage system for many years with excess surface water damaging crops and resulting in frequent crop stress or crop loss. The loss of production equates to an economic loss for Lyon and Redwood County and the State of Minnesota. The loss results in reduced property value for the wet acres, thus affecting the taxing capacity of the County and State. Also, the ability of the landowners to receive a reasonable return on their investment is diminished because of inadequate drainage.

For these reasons, the “Do Nothing” alternative was dismissed. The economic question of the cost of the Improvement versus the benefits derived still needs to be evaluated. However, the “Do Nothing” alternative is not viewed as solving the drainage problem in the watershed.

B. WETLAND RESTORATION

Another alternative would be to restore the typically flooded areas of the watershed to wetland use. This alternative would provide storage in watershed depressional areas for water which is currently accumulating in these areas and drowning out agricultural crops. The proposal would also have added benefits for wildlife and possibly water quality.

To be effective, this alternative needs to restore sufficient acres to wetland use so the existing drain tile system could convey excess runoff. Utilizing NRCS data, it is estimated about 251 acre-feet of water runs off the watershed during a 5-year storm event. Of this total, about 209-acre feet of water is not able to be discharged through the existing drainage systems in a 48-

hour period following the storm event. If sufficient wetland acres were available to store this runoff at a one-foot depth, approximately 209 acres of wetland restoration would be needed to provide a 5-year storm event protection.

To convert the 209 acres to wetlands, at least twice this many acres would need to be acquired for irregular wetland shapes and marginal damp soils. Thus about 418 acres of land would be needed. This acquisition would likely involve multiple properties who would voluntarily need to agree to the reversion. The estimated cost of acquisition plus reconstructing tile lines would probably range around \$10,000 per acre. Applying this price to the estimated 418 acres results in a total cost of about \$4,180,000 or 6.5% less than the estimated cost for the Improvement.

Wetland restoration remains a viable option for providing some improvement in the functioning of the tile drainage system. If sufficient acres of wetlands were restored, particularly in the upper part of the watershed, it could reduce the need for as large of an outlet tile as is proposed. Finding willing landowners to participate in a restoration project and locating sufficient funding would be critical to make this option viable. As part of the initial submittal of the Preliminary Engineers report copies were provided to the SWCD and NRCS so early coordination could occur for potential funding and technical assistance toward this option. Copies of this Final Engineers Report will also be provided to the SWCD and NRCS so that coordination can still occur outside of the improvement process.

VII. OTHER CONSIDERATIONS

A. PERMIT REQUIREMENTS

A permit from the Minnesota Pollution Control Agency for stormwater and erosion control for the project would be necessary. This permit requirement, which applies to any project which disturbs more than one acre of land, requires that the contractor and owner secure a permit for the project. The permit process will also require erosion control measures to be taken during construction. Typical erosion control measures include placing of riprap and grass stabilization of the ditch bank and inlet protection around installed inlet areas. The fee for this permit is currently \$400.00. This permit will be applied for shortly before construction is scheduled so the contractor can sign the permit application.

A permit from Lyon County for the tile crossings of the County Highways will be required. This permit will be applied for after the Final Hearing.

B. WETLANDS

National Wetland Inventory Maps was reviewed to locate potential wetlands subject to regulations. Most of the landowners along the improvement have already provided documentation from the NRCS to identify any additional potential wetlands. The location of these mapped, but not delineated, wetlands are shown on Exhibit 1. Negative impacts to the wetlands will be mitigated by constructing non-perforated tile through, and near, these wetlands.

Impacts of the potential drainage system on individual land parcels will be evaluated by the Natural Resources Conservation Service upon filing of a Form AD 1026 by landowners. This NRCS process will identify any wetlands and measures which need to be taken for the drainage project to avoid impact to these wetlands. Because of federal data privacy requirements, it is not possible for non-landowners to obtain this information. Thus, the obligation for filling out these forms and doing this investigation will rest with individual landowners.

Drainage of non-directly impacted wetlands will be controlled by supplemental drainage systems installed by private owners. Owners are advised that such supplemental drainage

may not be permitted under State Wetland Conservation Act, US Army Corps of Engineers and NRCS rules and may affect US Department of Agriculture program eligibility.

C. PUBLIC AND PRIVATE BENEFITS AND COSTS

The estimated cost of the proposed Improvement to JD 15 is shown in Exhibit 3 of this report. Benefits for the Improvement, both public and private, will be established by the viewers and a report will be available at the final hearing.

Landowners certainly have other costs associated with construction and maintenance of their individual drainage systems. The proposed Improvement would only serve as an outlet or collector of runoff and drainage flow from the lands within the watershed. Each landowner is responsible to construct and maintain their own drainage system to adequately drain their farmlands. Individual benefits for an adequate drainage system are in increased crop production from farm lands.

The estimated cost of the proposed Improvement is included in this report. The public and private benefits and damages will be available at the final hearing.

D. AGRICULTURAL EFFECTS

Once installed, the lands within the improved watershed will be largely dependent on this drainage system for both surface and subsurface drainage flows. Thus, it is imperative that the proposed system have adequate capacity to allow for modern farming operations.

It should be noted that many of the established ditch systems in Minnesota are now 70 to 100 years old. These systems are approaching the need for complete repair or replacement if the farmland is to remain productive. When feasible, it is economically imperative that these drainage systems be improved to become compatible with present day farming techniques and they be continually maintained. If properly maintained during normal growing seasons, portions of the agricultural lands in the watershed are some of the most productive in the State of Minnesota.

E. ALTERNATIVE MEASURES

Alternative measures, including those identified in the Lyon and Redwood County Water Management Plan have been considered in conjunction with this project. Specific proposals as part of the project to incorporate these measures include:

1. Measures to conserve, allocate and use drainage waters include the use of non-perforated tiles for the deeper installations so that groundwater is preserved for crop use and the continued infiltration which will occur in depressional areas of the watershed.
2. Measures to reduce downstream peak flows and flooding include the use of hickenbottom risers on intakes which limit the flow capacity of tile intakes, limiting the capacity of the proposed tiles to the minimum recommended standard of the NRCS to limit downstream flows, and construction of the proposed water and sediment control basin.
3. Measures to provide adequate drainage system capacity are being accomplished by designing the size of the tile system to meet recommended standards of the NRCS.
4. Measures to reduce erosion and sedimentation include the use of hickenbottom risers on tile intakes which result in reduced discharge of suspended solids, the restoration of the tile trench as soon as possible so surface erosion of disturbed soil is reduced, the use of inlet protection during construction so the discharge of suspended solids is reduced and the use of a rock filter at the outlet during construction so suspended solids are captured. Straw mulch will be utilized to temporarily stabilize disturbed areas until they can return to agricultural production. The WASCObS will reduce sedimentation

into the JD 15 Main open ditch.

F. WATER QUALITY

Little change in measurable water quality is anticipated because of this Improvement. However, there are components of the Improvement that will mitigate erosion and help improve water quality on a micro watershed scale. Tile system velocities are generally low, so soil from the surrounding envelop is seldom carried into the tile. Thus, the largest source of suspended solids in tile system drainage is from water discharging into open intakes. Although open intakes will still be used on the system, ponding occurs around these intakes for any significant storm events. Thus, solids have time to settle rather than being discharged.

The water and sediment control basins will settle out sediment and sediment-bound pollutants. The proposed WASCOB will collect the overland flow from the watershed, which is currently directly discharging into the JD 15 Main open ditch. Studies have shown that WASCOBs can reduce sediment discharges by 64 to 97%, and sediment-bound phosphorus by 74% to 80%.

As a requirement of the MPCA Erosion Control Permit, the establishment of an erosion control plan is anticipated. Incorporation of such devices as inlet protection, riprap at the outlets and permanent grasses as soon as possible following construction are anticipated. These measures will help to reduce erosion and maintain water quality during construction.

G. FISH AND WILDLIFE

The threatened or endangered species having the potential to be in Lyon or Redwood County at the time of this report are the Dakota skipper, Poweshiek skipperling, northern long-eared bat, and the prairie bush clover. According to the Minnesota DNR and US Fish & Wildlife Service, there are no known Dakota skippers or Poweshiek skipperlings within the project area. According to the Minnesota DNR, there are no known northern long-eared bat roost trees or hibernacula in Lyon and Redwood Counties. Additionally, there are no trees to be removed as a part of the improvement, so there is no anticipated impact to the northern long-eared bat. The prairie bush clover is found within native prairie on well drained soils. The project will take place within agricultural fields, so no impact to the prairie bush clover is anticipated. Bald eagles are present in Lyon and Redwood County, and are protected under the Bald and Golden Eagle Protection Act. Again, there are no trees to be removed as a part of the improvement, so there is no impact to the bald eagle.

Current wet areas within the project watershed do provide for transitory stop over locations for migratory waterfowl. However, these areas currently dry up following wet periods and are then under cultivation and production. It is anticipated that some of these temporary ponding areas will still exist after the construction of the Improvement although ponding times will likely be reduced. Therefore, the provisions for adequate drainage of these lands will not be of a detrimental nature to local wildlife resources.

H. GROUNDWATER

The purpose of an agricultural drainage system is to maintain the elevation of the shallow groundwater table sufficiently below the surface to provide for efficient production of crops. The level at which groundwater will be maintained has been and will be determined by the depth of the tile system and private tiles in the area. Although the proposed Improvement is somewhat deeper than existing tiles in the areas, the depth increase is not significant or unusual for drainage systems. Additionally, tiles with a depth of 6 feet or greater to the invert of pipe will be non-perforated. Therefore, no change in the availability, distribution or use of shallow groundwater beyond that necessary for sufficient production of crops within the watershed is anticipated by construction.

I. ENVIRONMENTAL IMPACT

Adverse effects of the proposed Improvement are temporary in nature and are as follows:

1. Disturbing of the ground surface during construction could result in the loss of one crop within the construction limits.
2. Restored trench area will be less productive for the first few years following construction and will require more fertilizer to be as productive as the undisturbed adjoining farmland. The topsoil in this area will be removed and replaced in an effort to maintain soil productivity.
3. Temporary noise and dust generation can be expected from construction operations. These impacts are not viewed as significant since there are few residences near the proposed construction route.
4. Temporary erosion of soil may occur in the construction area until permanent ground cover and ground stabilization occurs. Although these effects need to be considered, they are probably not significantly different than the current topsoil loss that occurs annually from erosion of topsoil due to overland flow in the watershed. This construction erosion will be minimized using inlet protection, riprap and rapid establishment of permanent grass cover.

Numerous beneficial effects are anticipated from the proposed Improvement. Most of these benefits are directly attributable to increased crop production from lands presently damaged through period flooding and ponding. Among the most obvious benefits are:

1. Increased personal farm income.
2. Increased value of benefited farm land.
3. Contribution to the local economy through additional purchases, farm modernization and expansion.
4. Construction of WASCObS will reduce peak flows and sedimentation into the JD 15 Main open ditch.

J. LAND USE

The present use of land in the JD 15 watershed is largely agricultural. This use is expected to continue.

K. GUIDANCE TO VIEWERS REGARDING IMPROVEMENT BENEFITS

Discussions with landowners in the JD 15 system provided evidence of the condition of the existing tile systems of JD 15. Previous repairs on the tile and televising have shown the existing tile has offset joints, cracked pipe and is badly deteriorated. In addition, years of use and settlement of sections of the tile have reduced the hydraulic capacity of the tile. Even if JD 15 had not been petitioned for improvement, a repair is warranted, as discussed in Section III of this report.

Another way to describe this is related to the benefit of avoiding inevitable repair/reconstruction costs on the ditch. Since repair of the system, as required by Minnesota Statue 103E.705, would otherwise be paid for by the entire drainage system to restore the system to its as-constructed, and subsequently improved, hydraulic efficiency, the cost of repair may be used to offset a portion of the improvement cost. Thus, the cost of new tiles may be added as a benefit since it avoids costs otherwise required to repair the system. With this information, it is the intent of the Improvement to replace the existing tile. Thus, a portion of the cost of the new JD 15 tile system should be allocated as a Repair cost. The application of this principal is known as Separable Benefits under the ditch statutes.

The amount of the Improvement which can be allocated to Separable Benefits is shown in Exhibit 4 as \$2,459,580.00. It is recommended that the Board apply these Separable Benefits

to the Improvement in the further ditch proceedings.

L. RESPONSE TO DNR COMMENTS

At the Preliminary Hearing, the Board received comments from the DNR regarding the improvement, and directed the engineer to address several of the comments in this Final Engineer's Report.

The first comment questioned why some of the tile laterals have a drainage coefficient of greater than 0.50 inches per day. The answer to this question is three-fold. The first reason is some of the tiles are an odd tile size that is no longer commercially available so the next size larger is typically used. The second reason is some of the tiles are proposed to be installed at a steep enough grade to provide for a cleaning velocity of 2ft/s so that the tiles do not become plugged with sediment. The third reason is when two pieces of relatively flat tile are connected by a steeper tile, it is not recommended to downsize the connecting tile to avoid plugging issues.

Concerns were raised by the DNR about downstream flooding. The Adequacy of the Outlet section of this report shows that peak flow rates are reduced under the proposed improvement.

Other concerns were raised about downstream water quality. The construction of the WASCOP's will reduce the sediment that is currently being washed into the open ditch.

The DNR encourages the use of non-perforated pipe to mitigate impacts to ground water. The report discusses how tile greater than 6-feet deep will be non-perforated. Additionally, the 42-inch and larger tile will be heavy duty pipe that is non-perforated.

VIII. ADEQUACY OF THE OUTLET

A. GENERAL INFORMATION

As mentioned earlier, the outlet for the Improvement is into the JD 15 Main Open Ditch in Redwood County.

B. ADEQUACY OF THE OUTLET

The adequacy of Main Open Ditch to accept the additional flow resulting from the Improvement has been evaluated as required by the ditch statutes. This evaluation has been performed in the following manner:

1. The watershed contributing flow to the Main open ditch of JD 15 at the outlet for JD 15 Improvement was delineated.

A HydroCAD model of the JD 15 watershed was developed to estimate change in peak flow rates at the Main open ditch of JD 15. HydroCAD is a computer model that computes the runoff storm hydrograph using methodology developed by the NRCS. The change in peak flow rates because of the Improvement were calculated as shown in Table 5.

Table 5: Calculation of Additional Flow					
Runoff Event	Existing Flow (CFS)	Proposed Flow Without WASCOBs (CFS)	Change In Flow Without WASCOBs (CFS)	Proposed Flow With WASCOBs (CFS)	Change In Flow With WASCOBs (CFS)
2-Year	112.8	126	13.2	112.1	-0.7
5-Year	181.6	152.1	-29.5	114.3	-67.3
10-Year	249.3	183.8	-65.5	118.4	-130.9
25-Year	314.7	247.9	-66.8	170.8	-143.9
50-Year	358.1	301.6	-56.5	248.8	-109.3
100-Year	369.7	352.2	-17.5	341.0	-28.7

- Resultant flow rates were used to estimate the “before project” and “after project” depths of flow in the JD 15 Main Open Ditch using Manning’s equation for open channel flow assuming normal depth flow.

Table 6: Impact to the JD 15 Open Ditch						
Impact without the WASCOB						
	Flow Rates			Flow Depth		
Flood Frequency	Peak Flow Before (cfs)	Peak Flow After (cfs)	Flow Increase (%)	Depth Before	Depth After	Depth Increase (ft)
2-Year	112.8	126	12%	4.5	4.8	0.3
5-Year	181.6	152.1	-16%	6.0	5.4	-0.6
10-Year	249.3	183.8	-26%	7.4	6	-1.4
25-Year	314.7	247.9	-21%	8.9	7.3	-1.6
50-Year	358.1	301.6	-16%	10.4	8.5	-1.9
100-Year	369.7	352.2	-5%	10.8	10.2	-0.6
Impact with the WASCOBs						
	Flow Rates			Flow Depth		
Flood Frequency	Peak Flow Before (cfs)	Peak Flow After (cfs)	Flow Increase (%)	Depth Before	Depth After	Depth Increase (ft)
2-Year	112.8	112.1	-1%	4.5	4.5	0.0
5-Year	181.6	114.3	-37%	6.0	4.6	-1.4
10-Year	249.3	118.4	-53%	7.4	4.7	-2.7
25-Year	314.7	170.8	-46%	8.9	5.8	-3.1
50-Year	358.1	248.8	-31%	10.4	7.4	-3.0
100-Year	369.7	341.0	-8%	10.8	9.8	-1.0

As can be seen from Table 5, construction of the Improvement without the WASCOBs will increase flows to the Main Open Ditch for the 2-Year event because of the larger pipe outlet, but will reduce the peak flow rate for the 5-Year and greater events because the larger tile will transport runoff through the tile rather than overland. Construction of the WASCOBs will reduce the peak flow rate for the 2-Year and greater events.

Table 6 presents peak ditch flow rates and depth of flow before and after construction of the Improvement with and without WASCOBs. Again, construction of the Improvement without the WASCOBs will increase flows and flow depth in the Main Open Ditch for the 2-Year event, but will reduce the peak flow rate for the 5-Year and greater events. Construction of the WASCOBs will reduce the peak flow rate and flow depth for the 2-Year and greater events

The Improvement with or without the WASCOBs will have minimal impact on the peak flow rate or depth in the Main open ditch of JD 15. It is therefore our opinion that the outlet is adequate for the proposed Improvement with or without WASCOBs.

IX. ESTIMATE OF COST

The preliminary cost estimate to construct the proposed Improvement, is described in this report is shown in Exhibit 3. The total estimated cost is \$4,474,304.00. Included in the construction cost estimate are the approximate 97.5 acres of agricultural land which will be temporarily taken out of production by construction. The individual landowners will be compensated for this loss through the damage process of further ditch proceedings.

X. RECOMMENDATIONS

The proposed Improvement of JD 15 in Lyon and Redwood County, as described in this report, is feasible, practical and necessary to provide drainage for the cultivation of crops within the watershed area. The existing tile system is inadequate to provide proper drainage for current agricultural practices. The outlet is adequate to convey the discharge.

It is the recommendation of your engineer that the Final Engineer's Report be approved and that if there are sufficient benefits, that the Board order the preparation of Final Plans and Specifications.

Exhibit 1: Preliminary Plans and Profiles

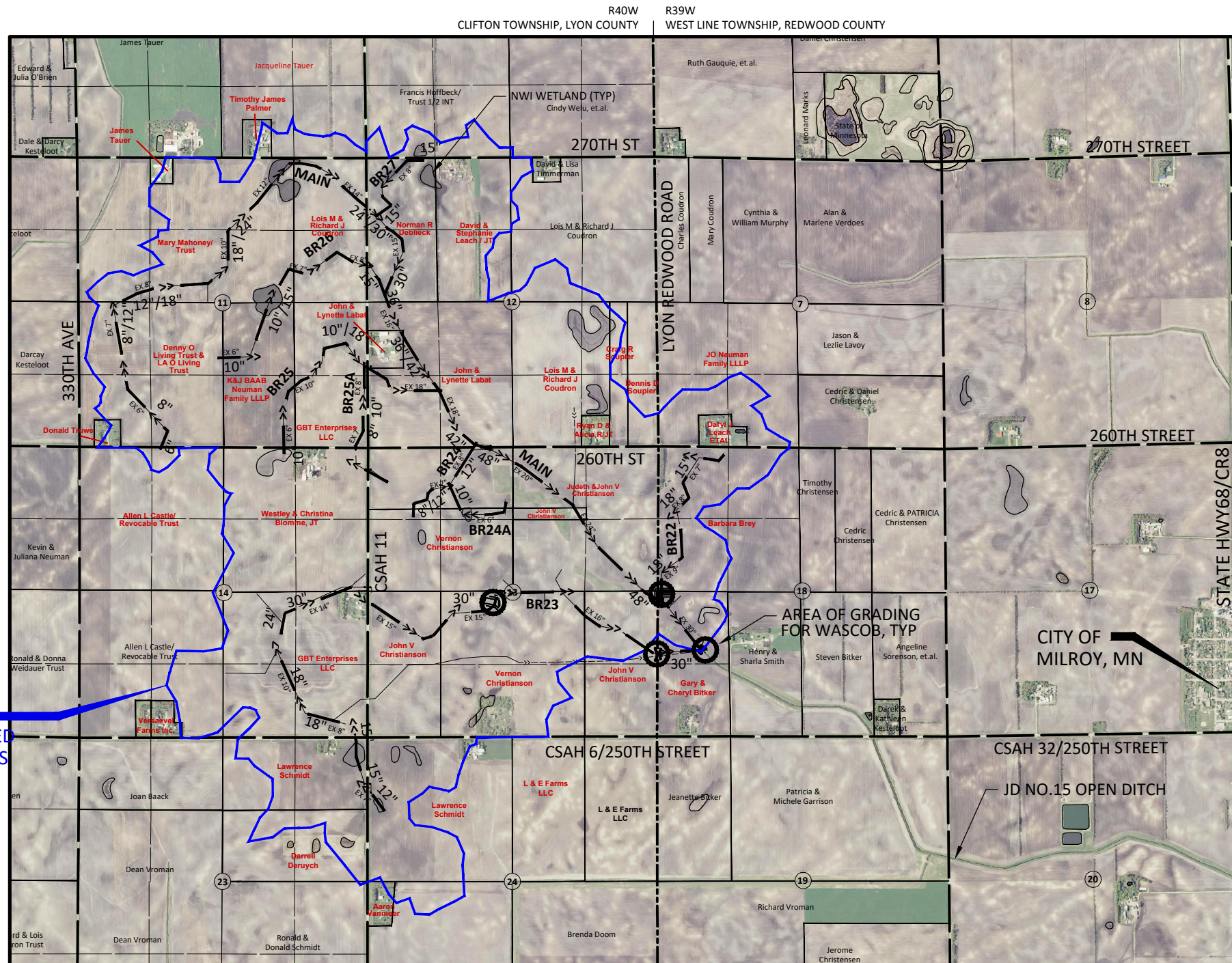
LYON COUNTY, MINNESOTA

PRELIMINARY CONSTRUCTION PLANS FOR

JUDICIAL DITCH NO. 15 IMPROVEMENTS

CONSTRUCT NEW TILE FOR JD-15; INCLUDING THE MAIN TILE AND BRANCHES 22, 23, 24, 25, 26 & 27

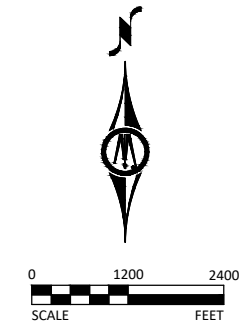
October, 2021



SHEET NUMBER	SHEET TITLE
GENERAL	
G0.01 - G0.02	TITLE SHEET, LEGEND
CIVIL	
C5.01 - C5.22	TILE PLAN & PROFILE
C8.01 - C8.01	STANDARD DETAIL PLATES, STANDARD PLANS

THIS PLAN SET CONTAINS 25 SHEETS.

MAP OF JD-15
LYON & REDWOOD COUNTY, MN



NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D UNLESS OTHERWISE NOTED. THIS UTILITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

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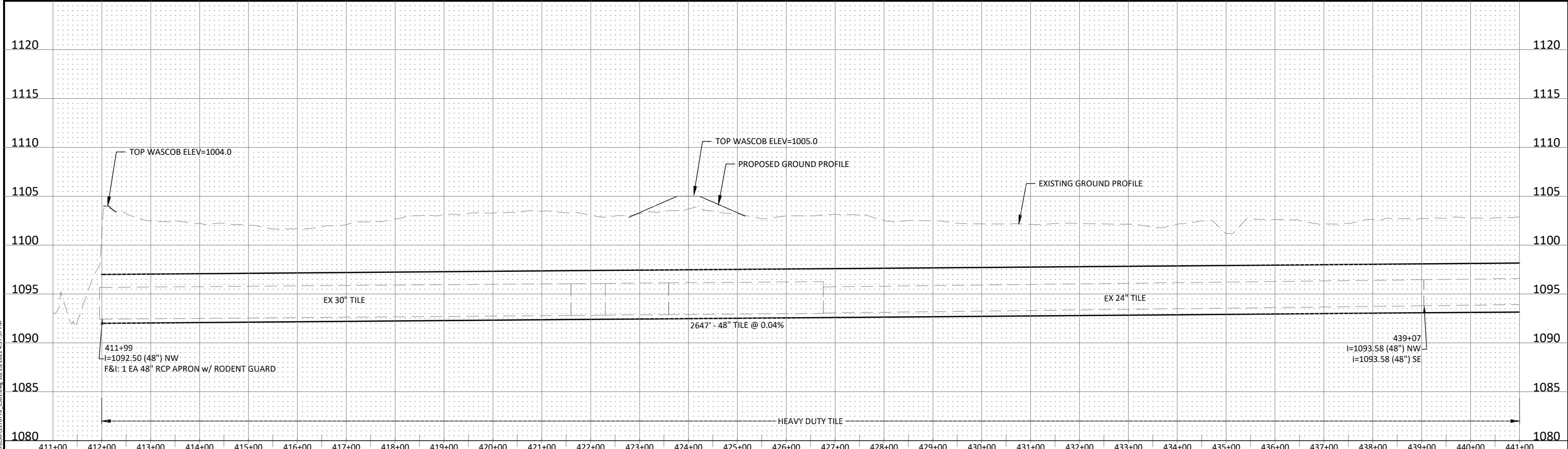
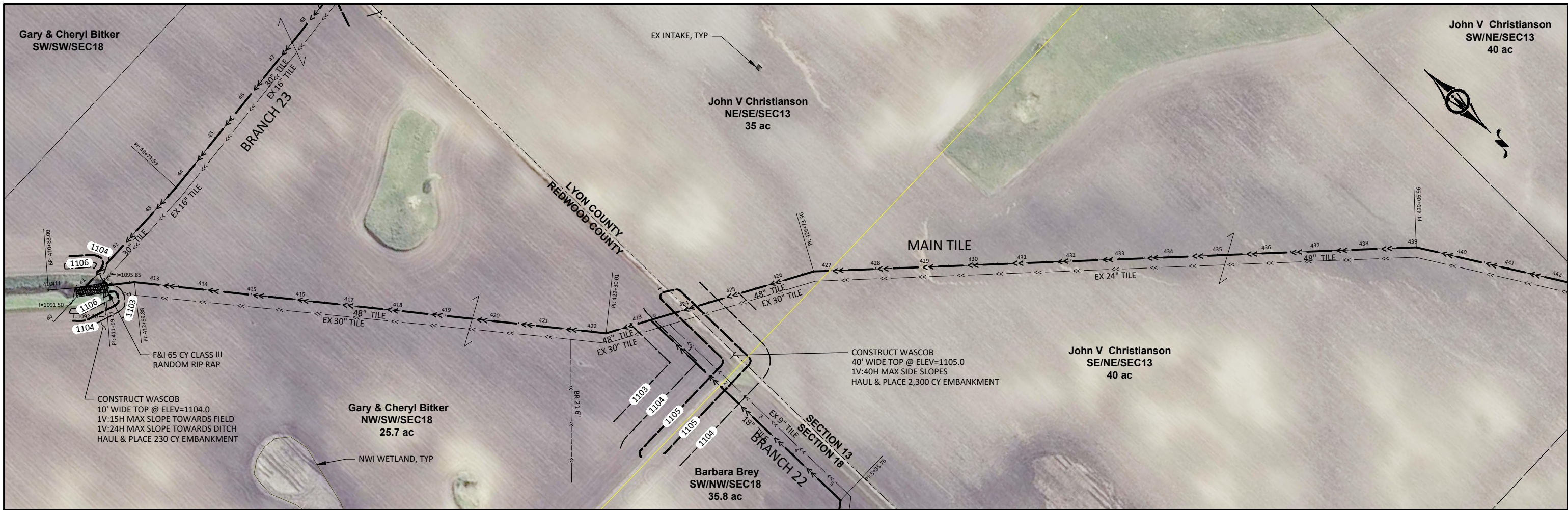
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	VERTICAL: NAVD88	
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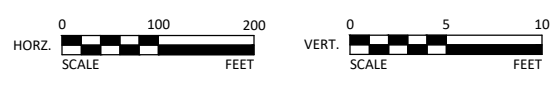


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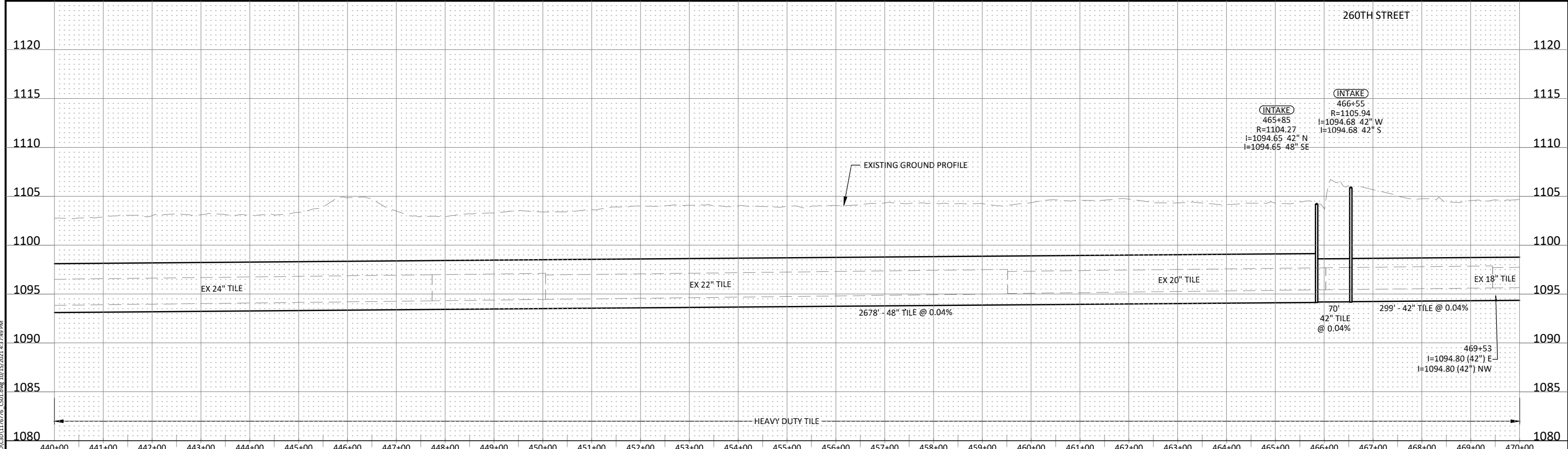
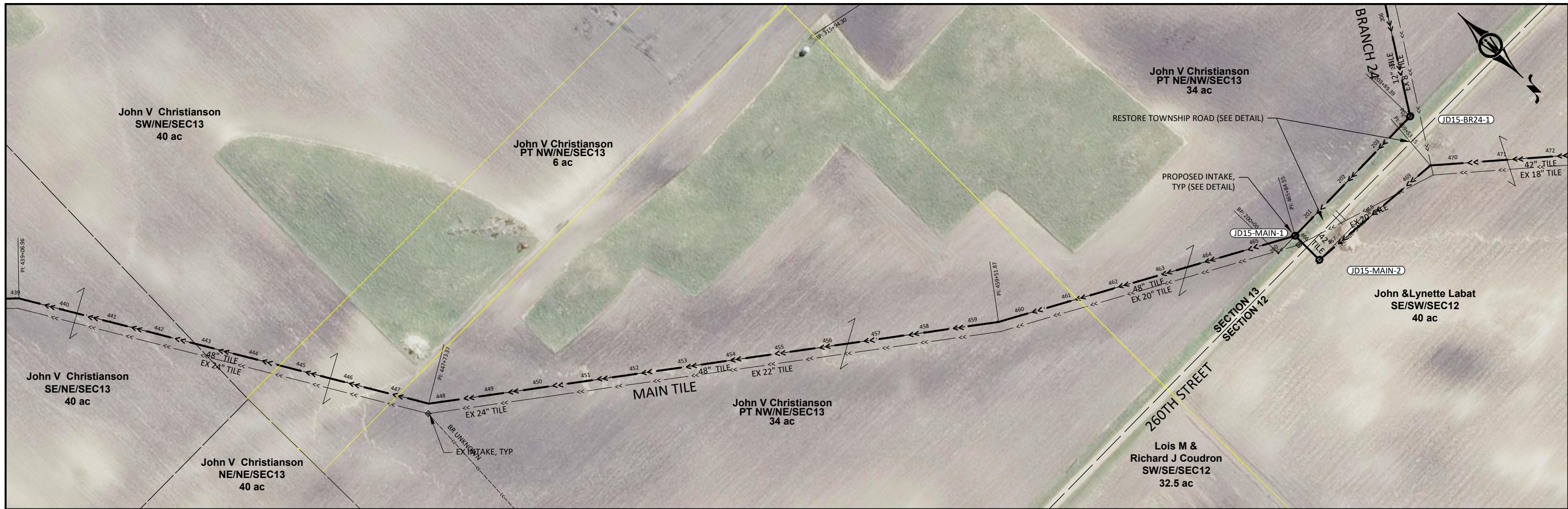


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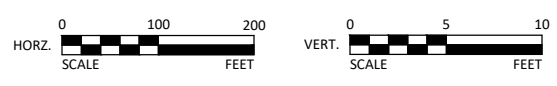
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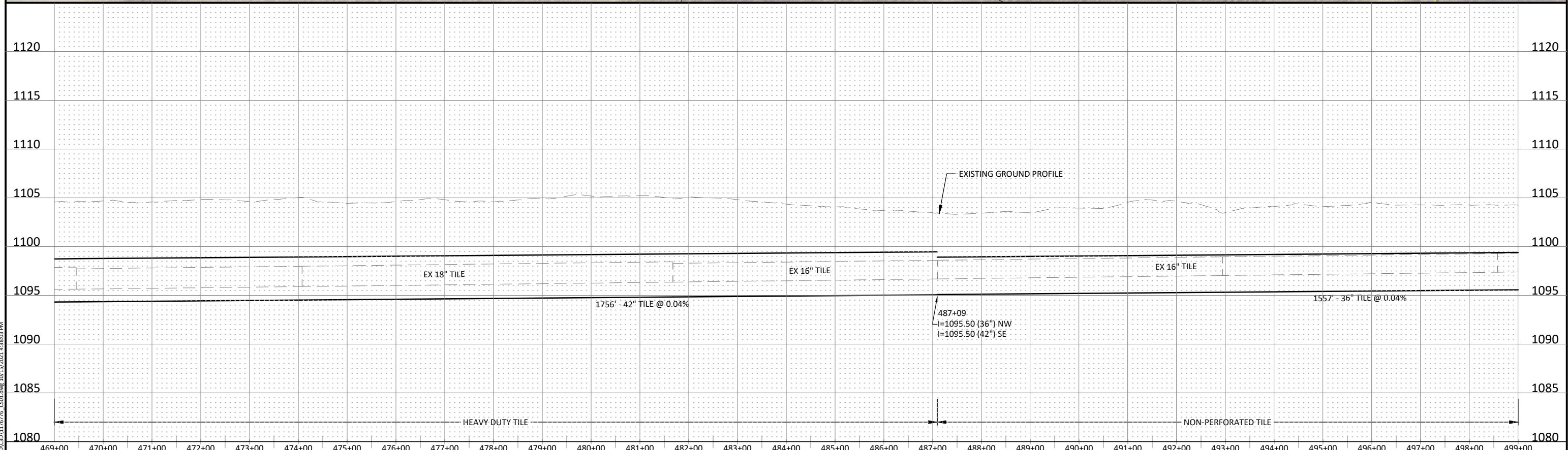
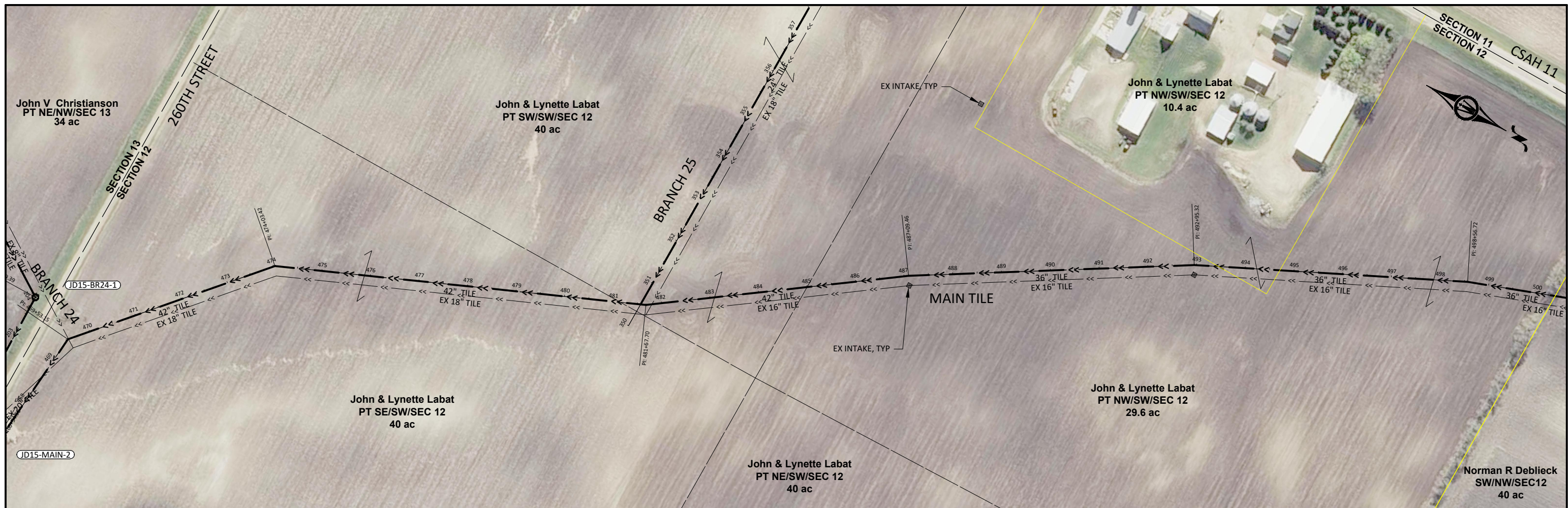


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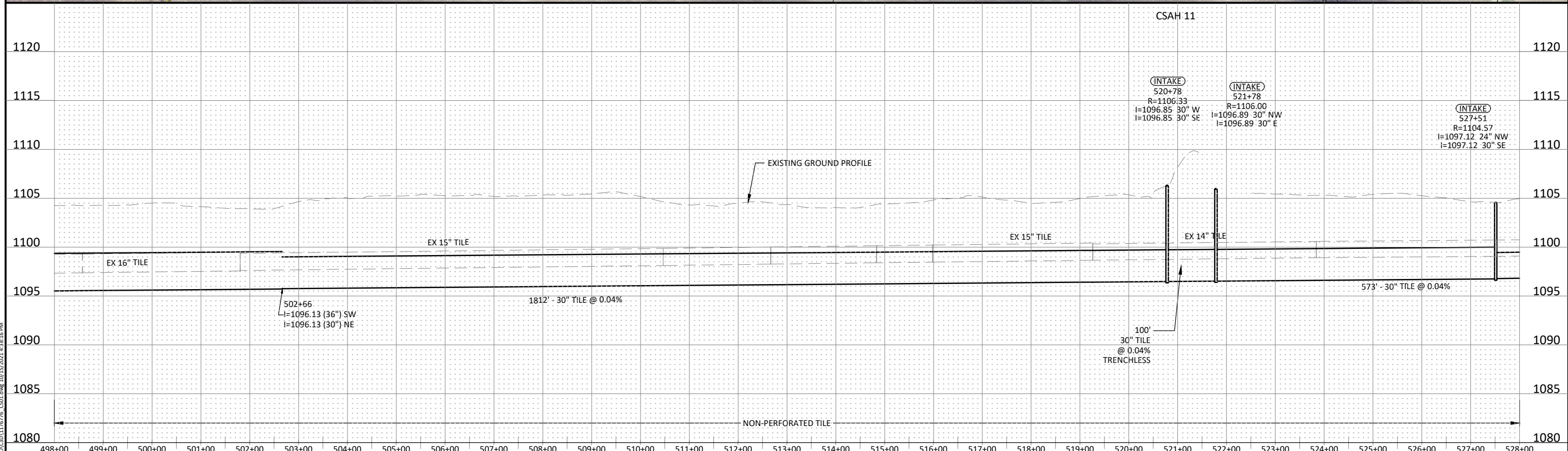
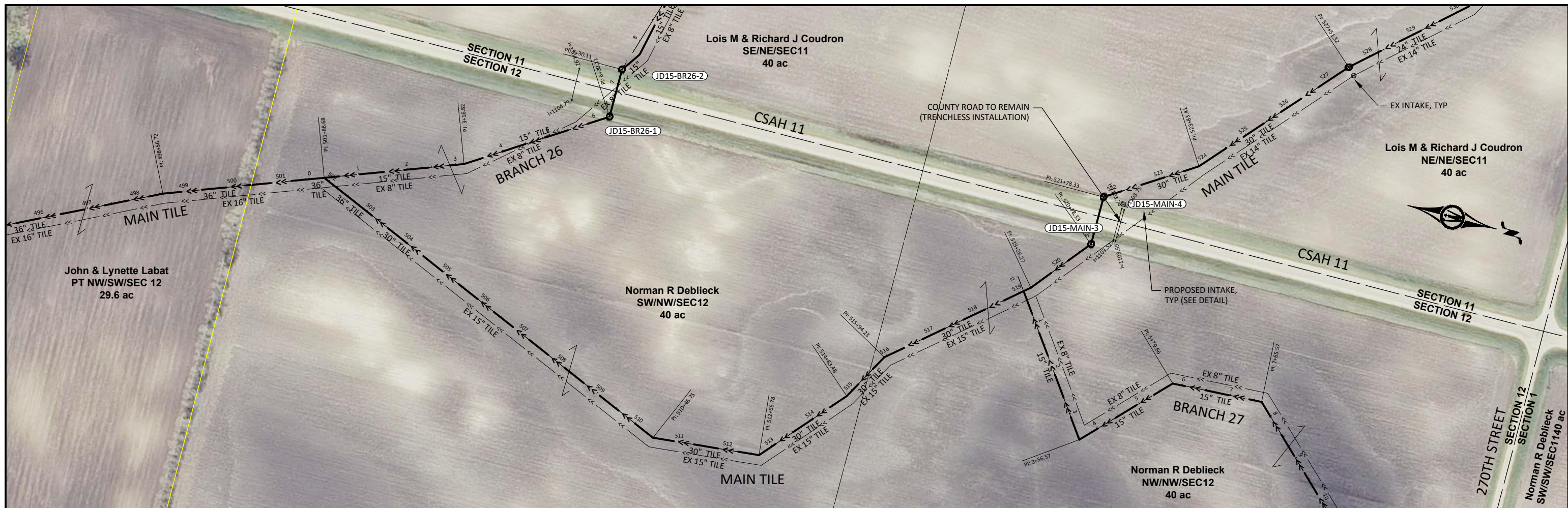


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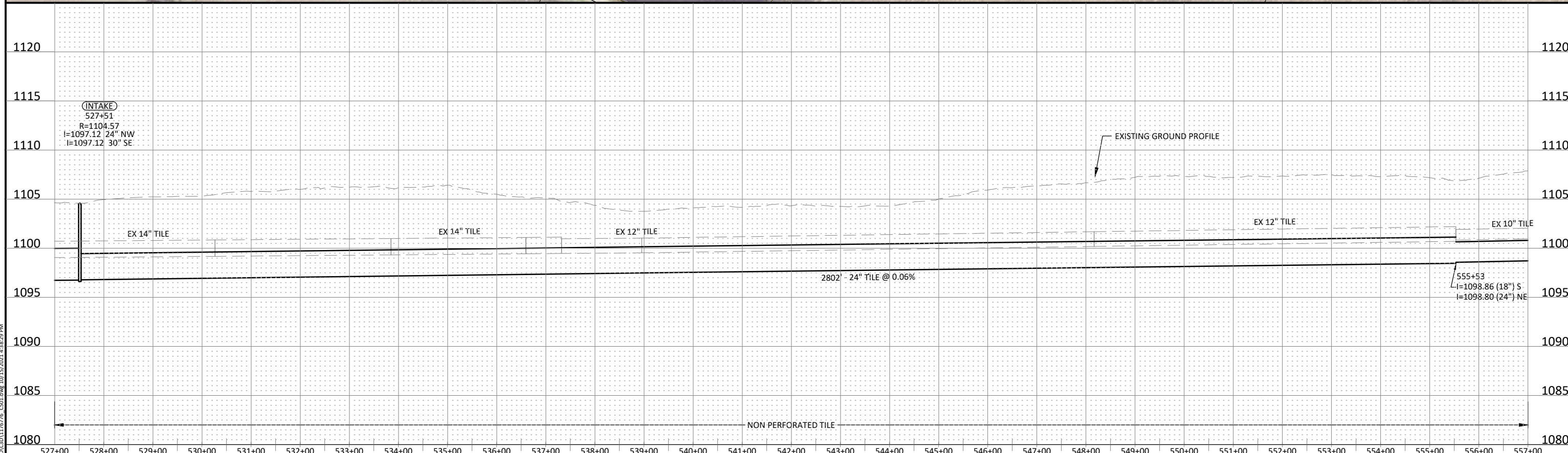


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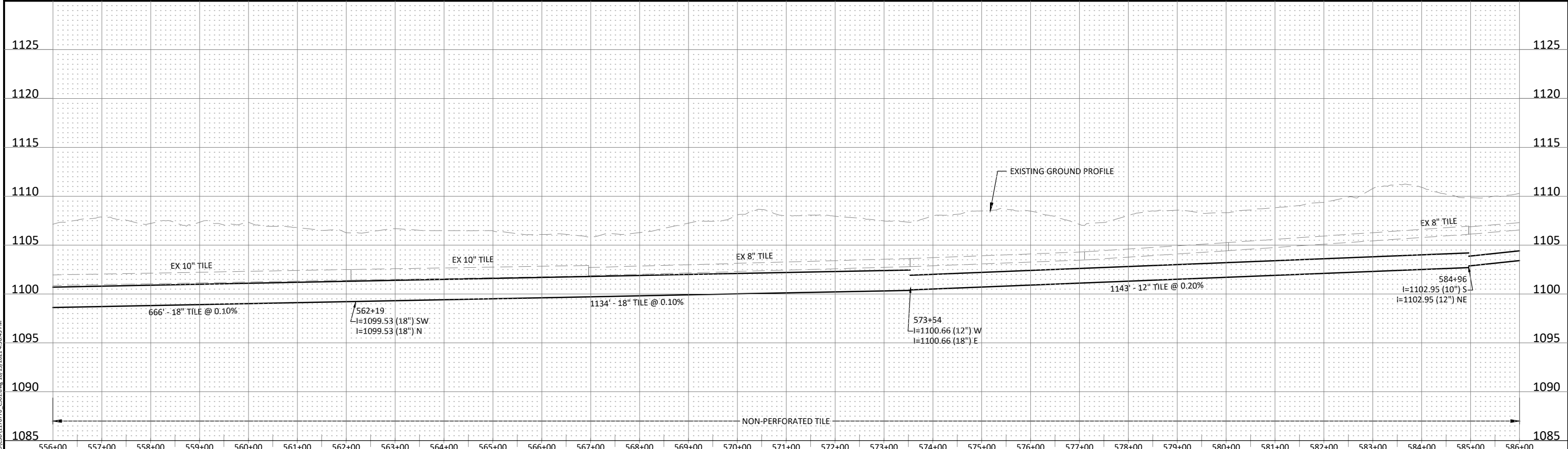
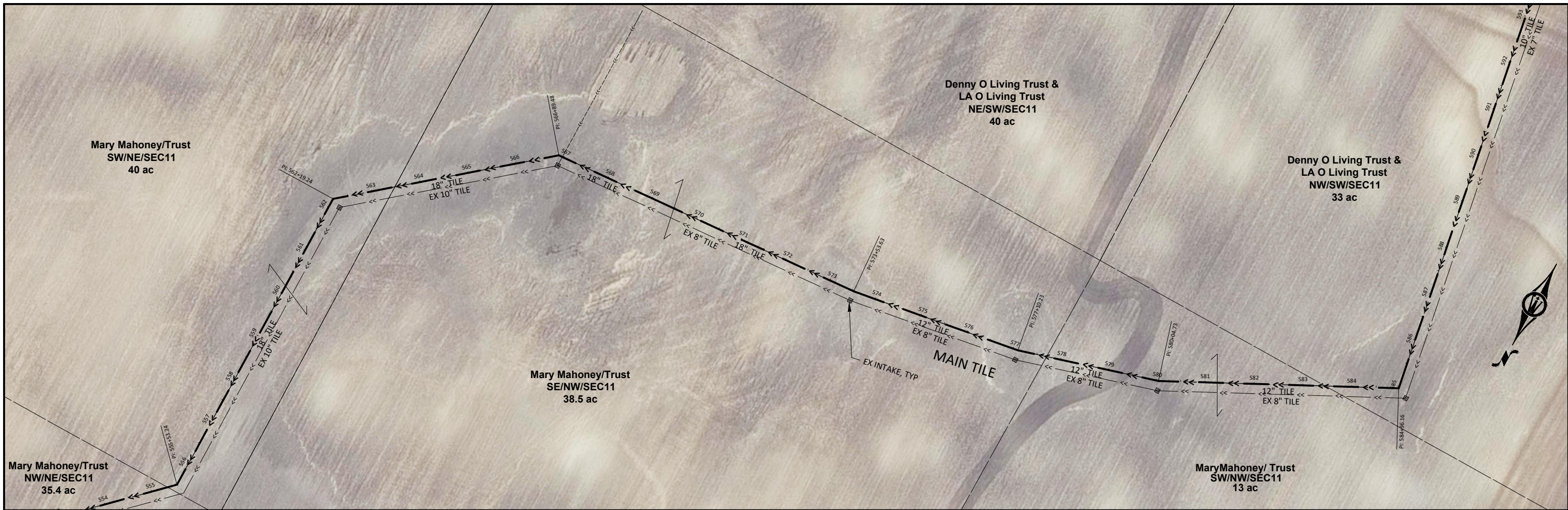


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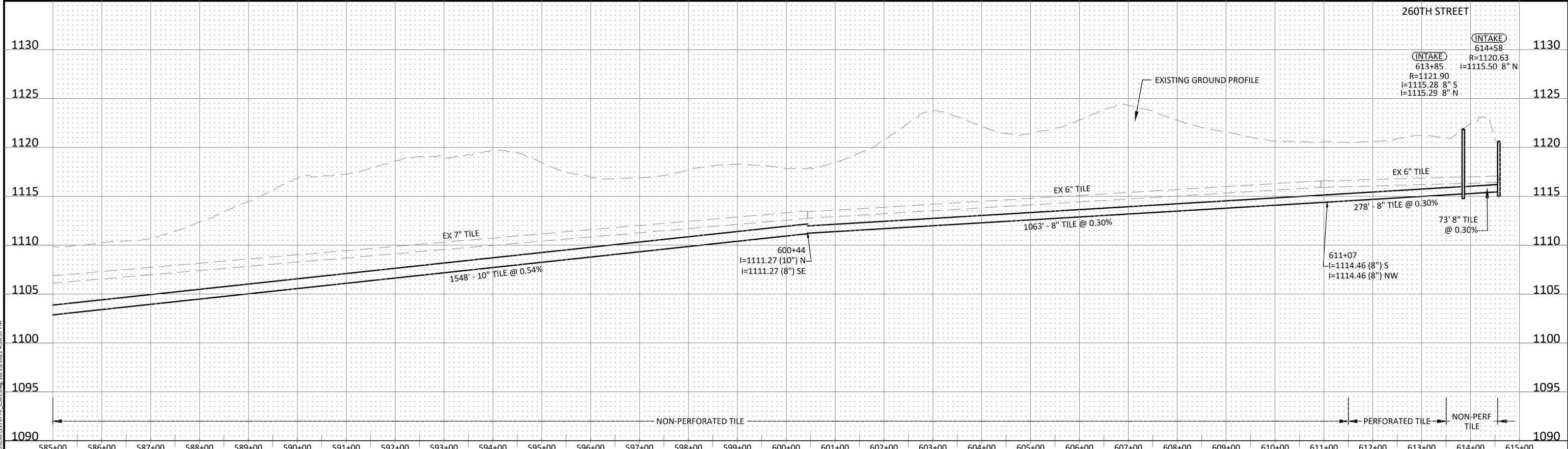
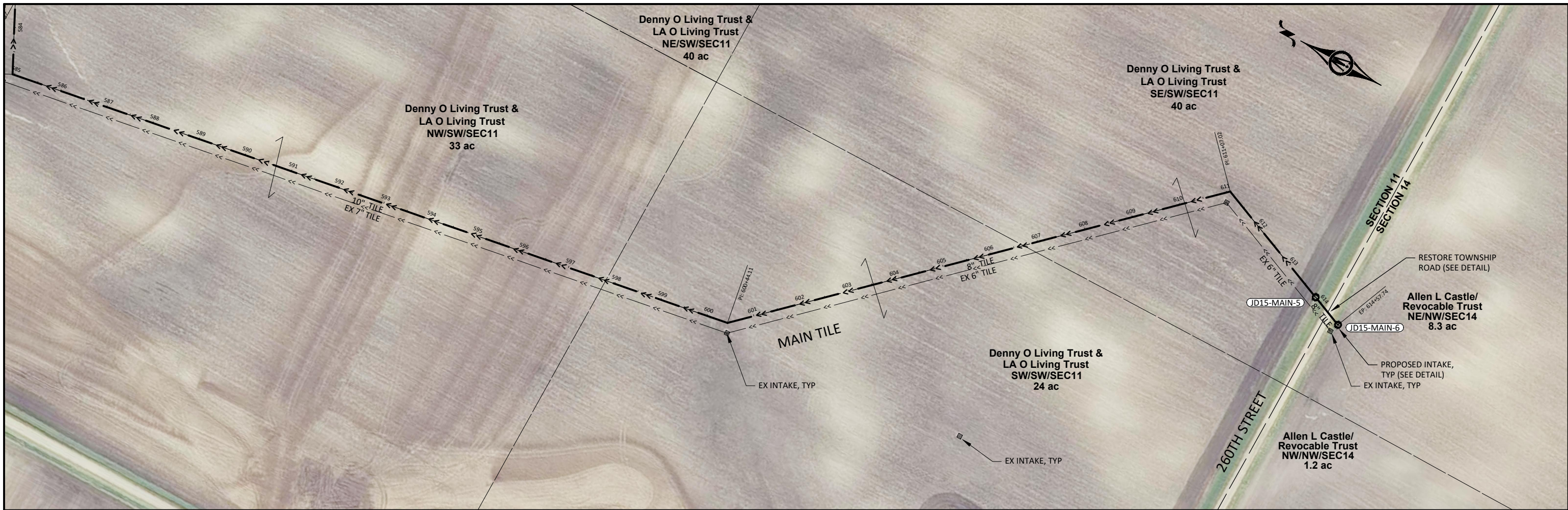


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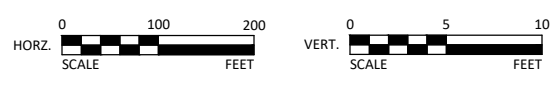
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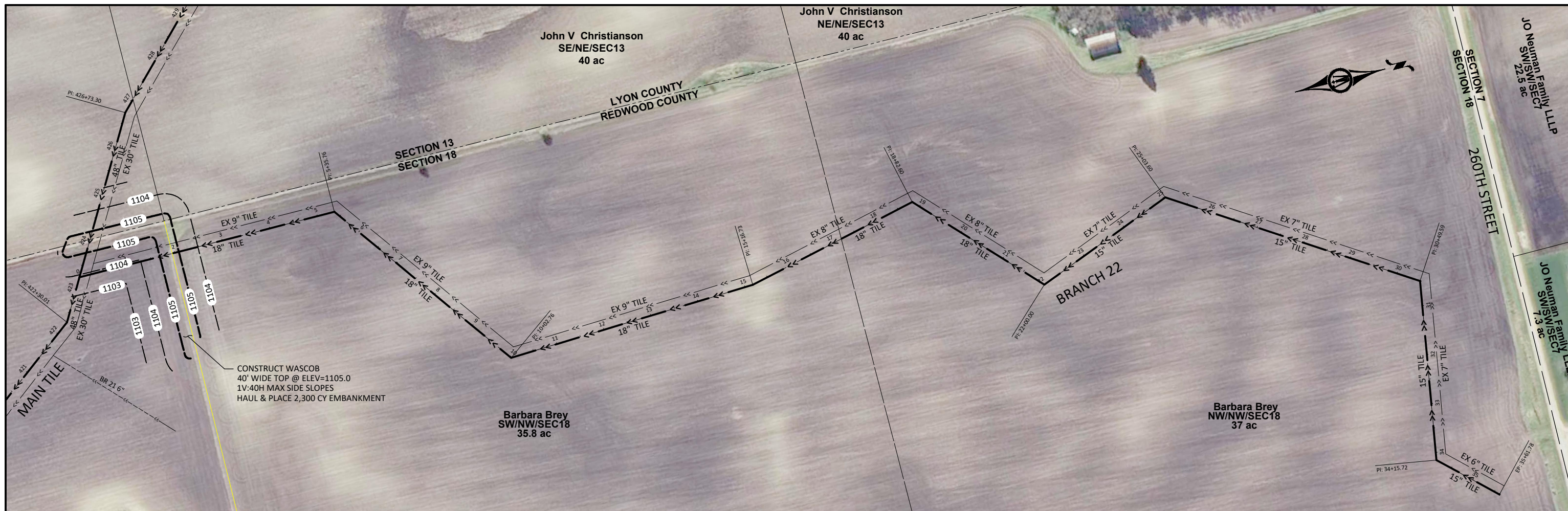


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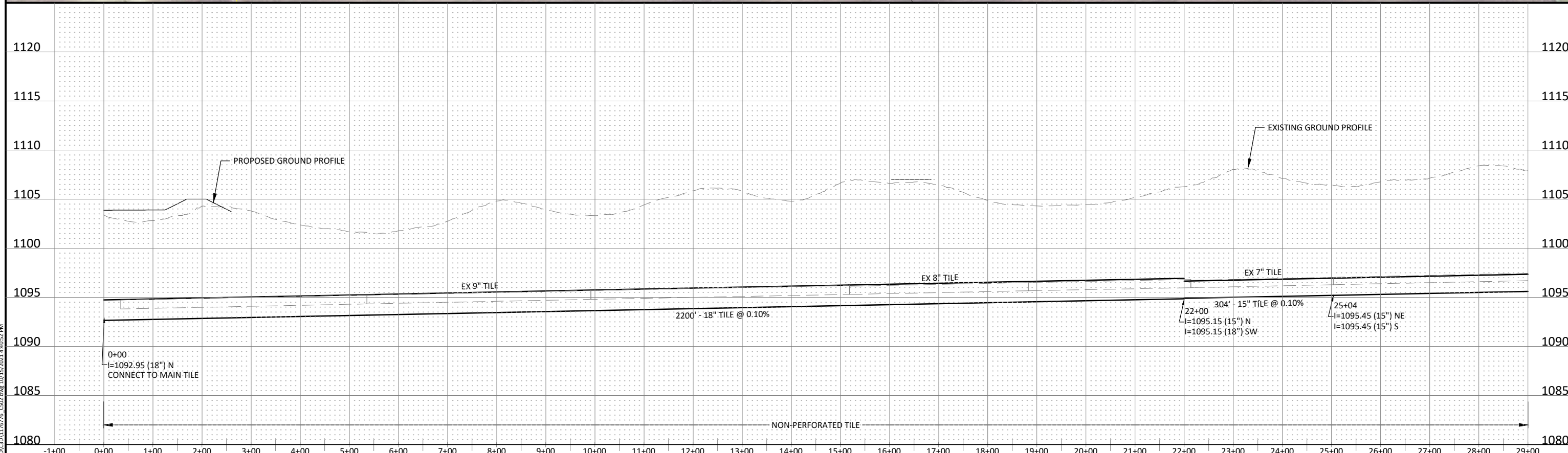
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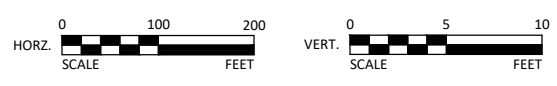
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CONSTRUCT WASCOB
 40' WIDE TOP @ ELEV=1105.0
 1V:40H MAX SIDE SLOPES
 HAUL & PLACE 2,300 CY EMBANKMENT



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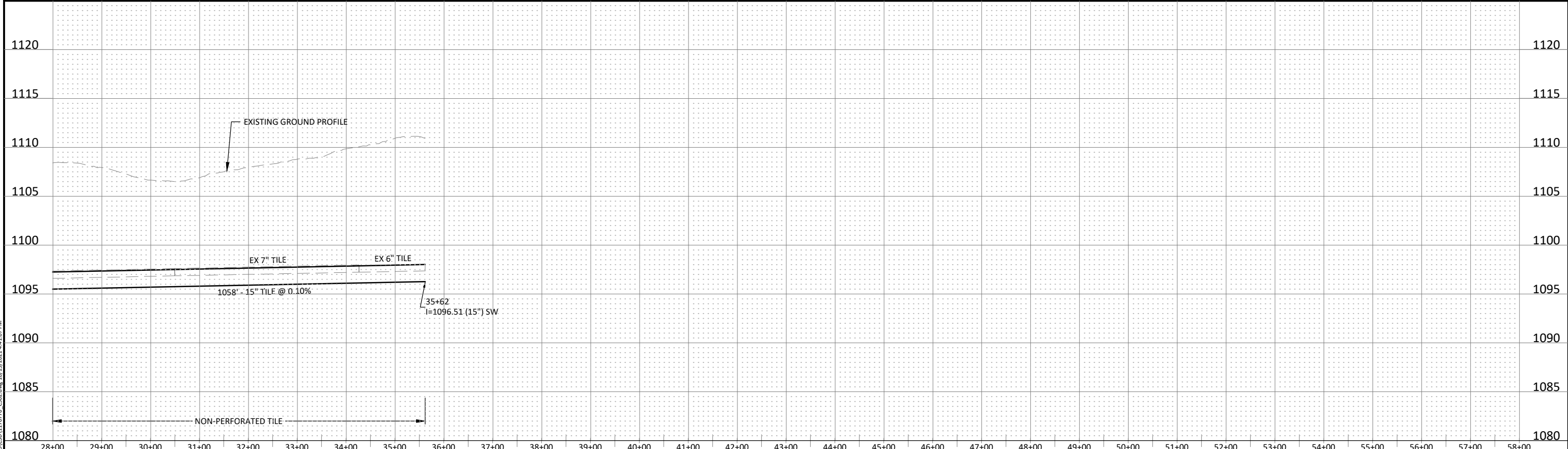


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 Phone: (507) 794-5541
 Email: SleepyEye@bolton-menk.com
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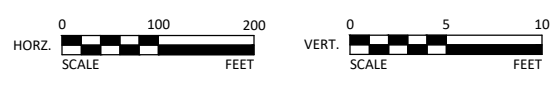
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CLIENT PROJ. NO.	515.116766		

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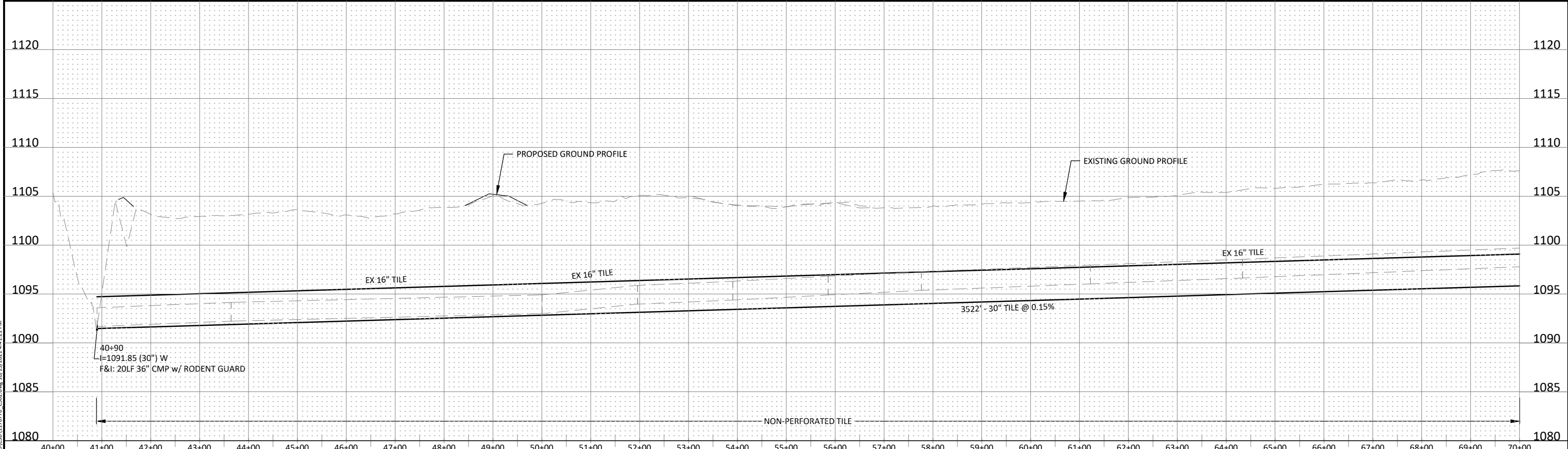
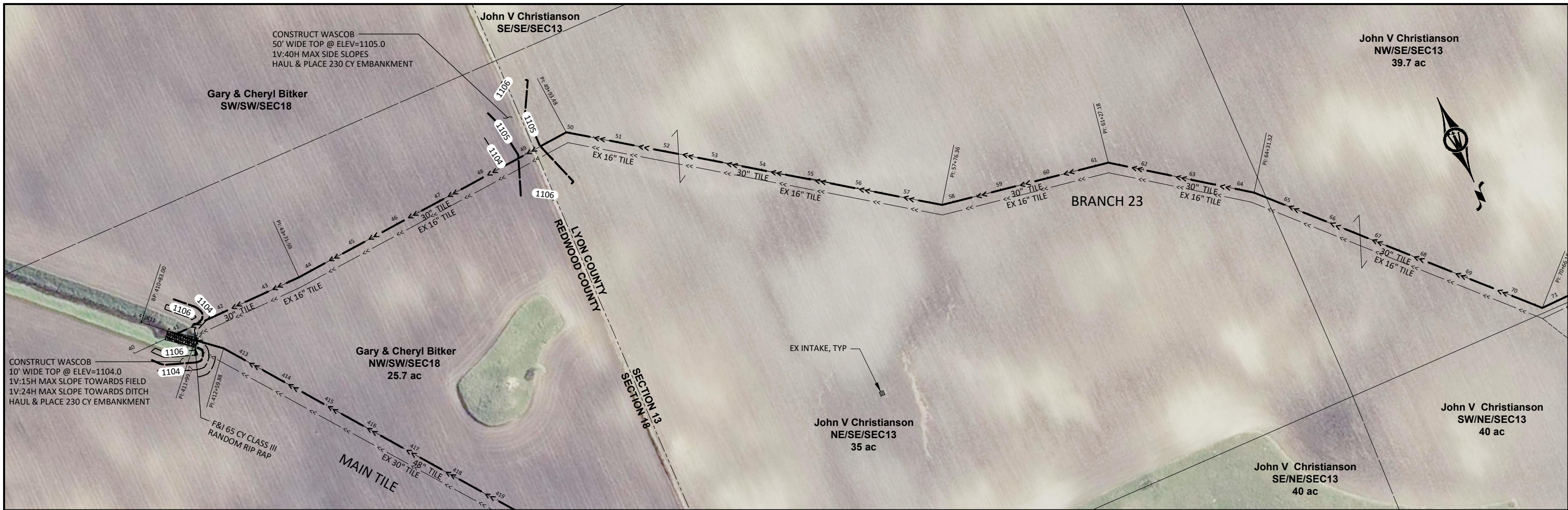


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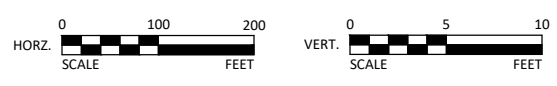
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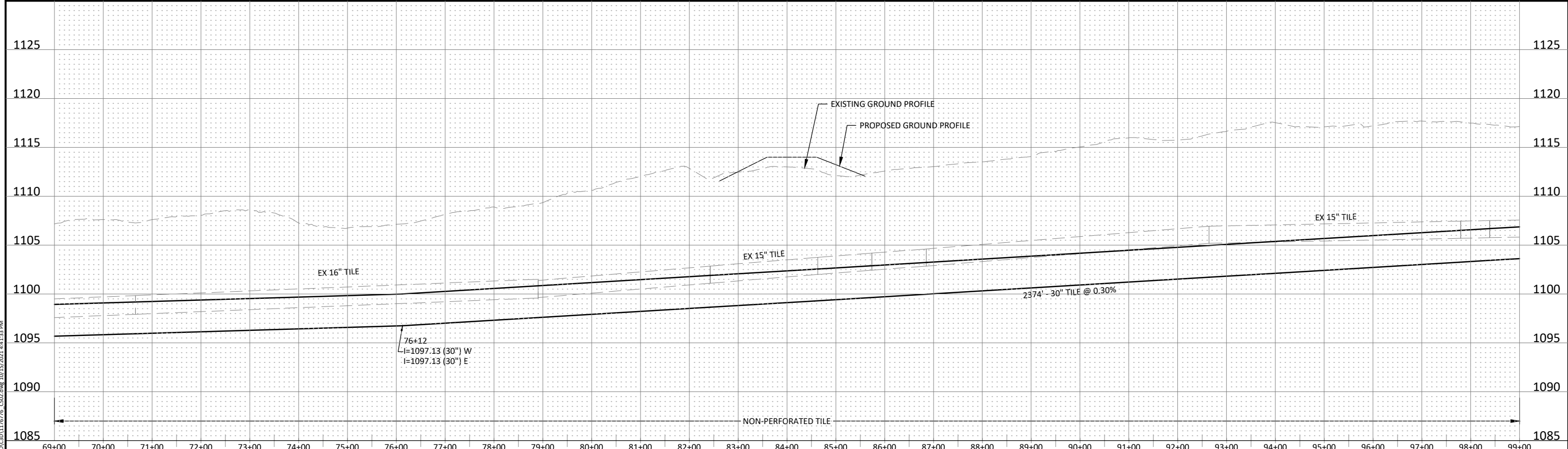
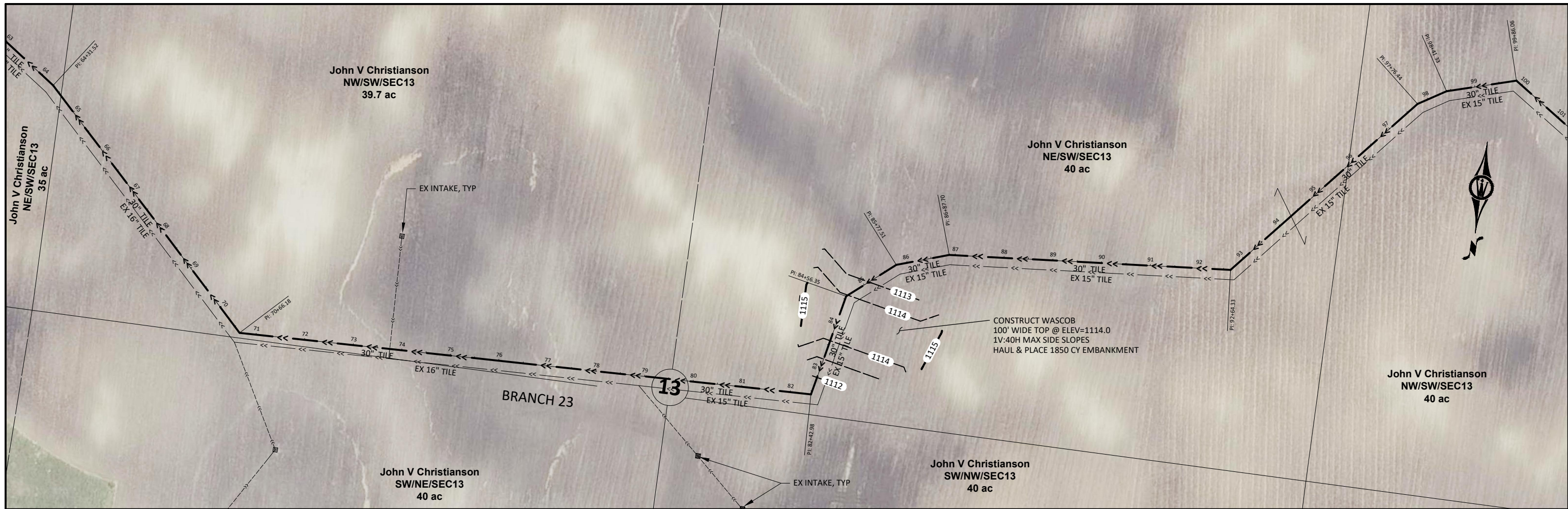


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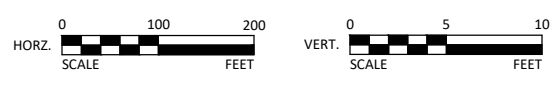
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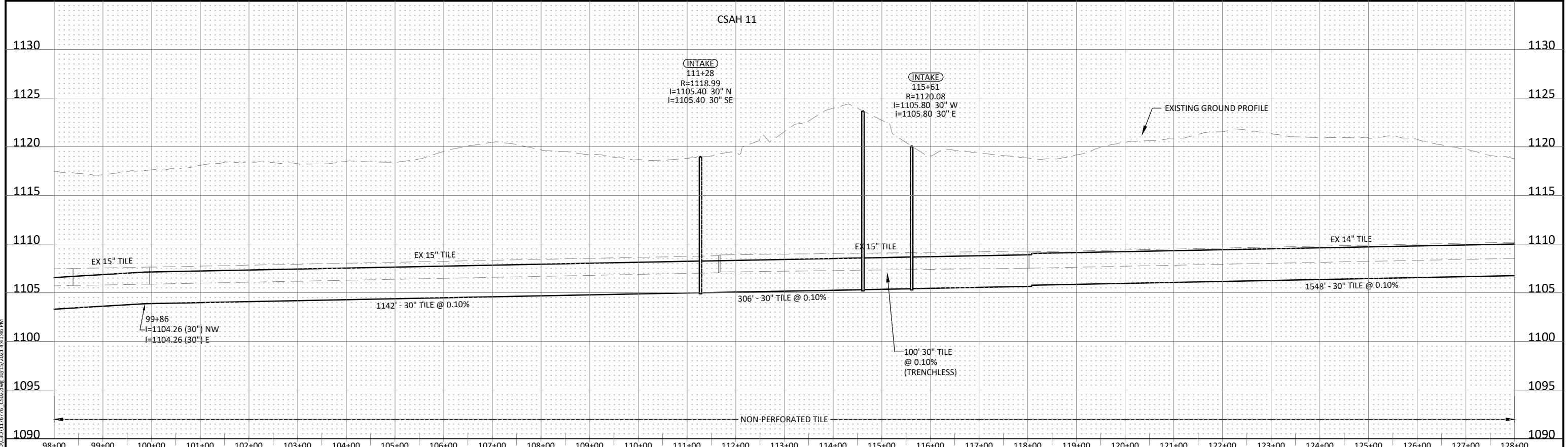
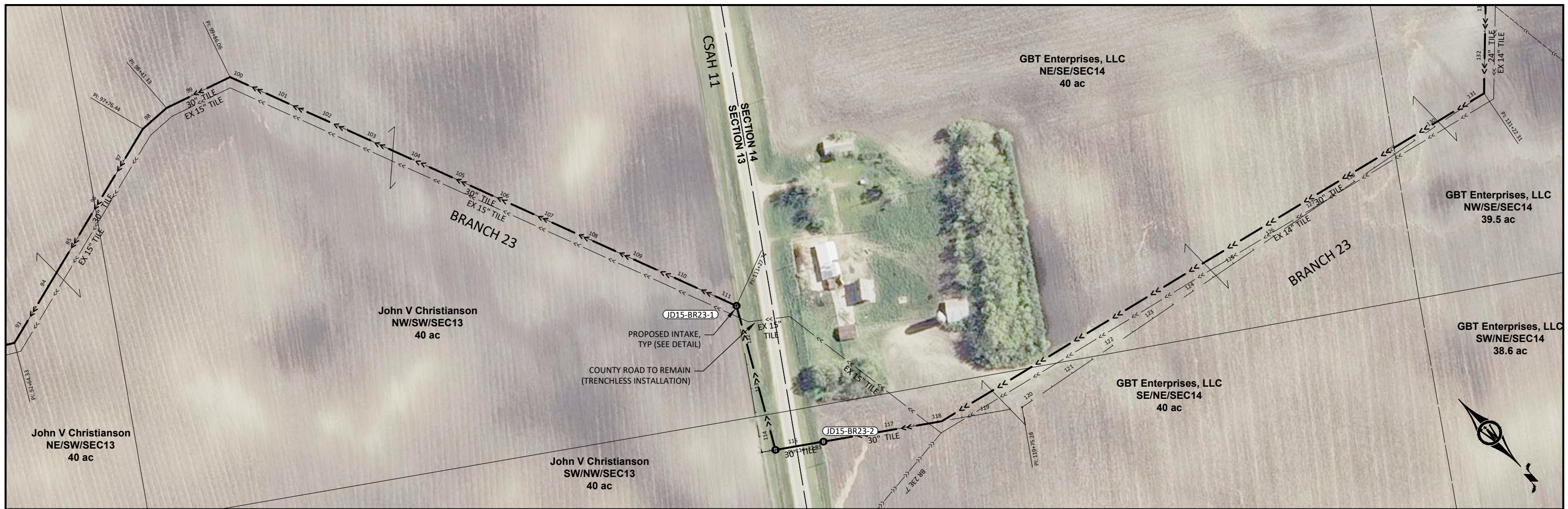


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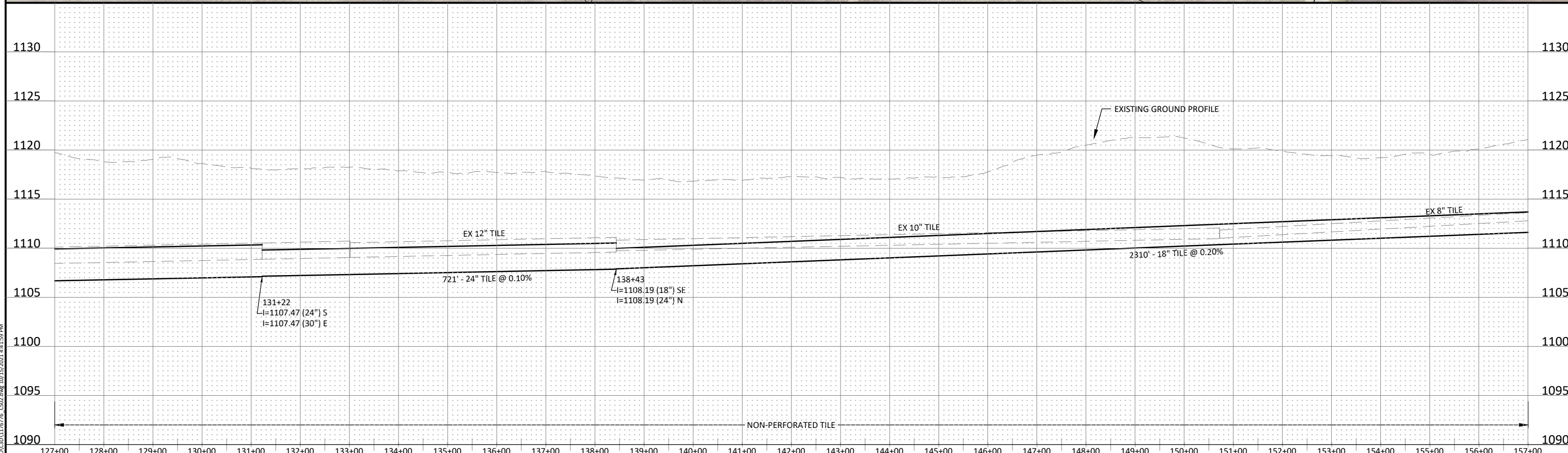
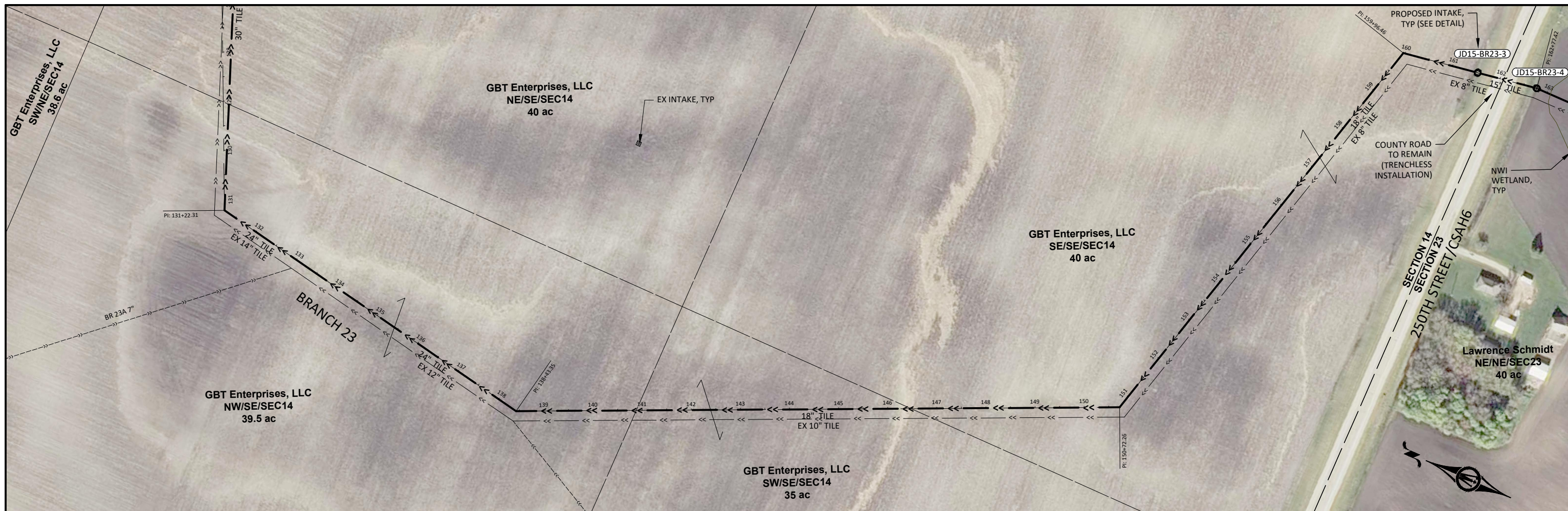


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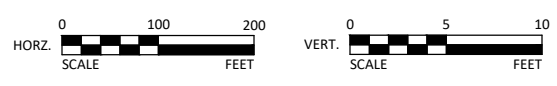
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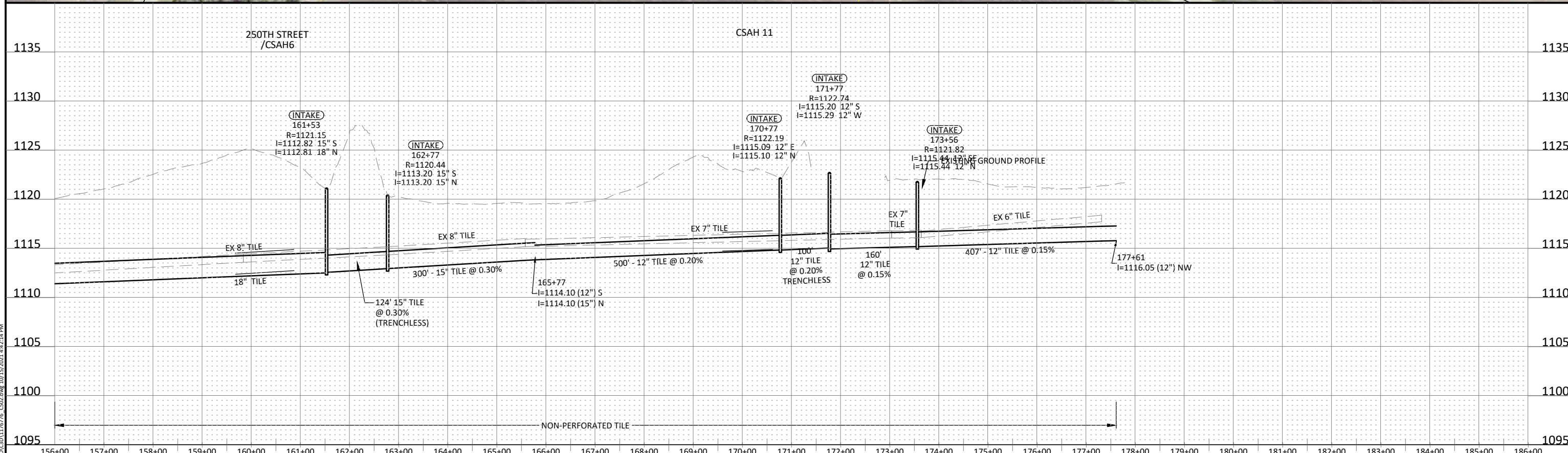
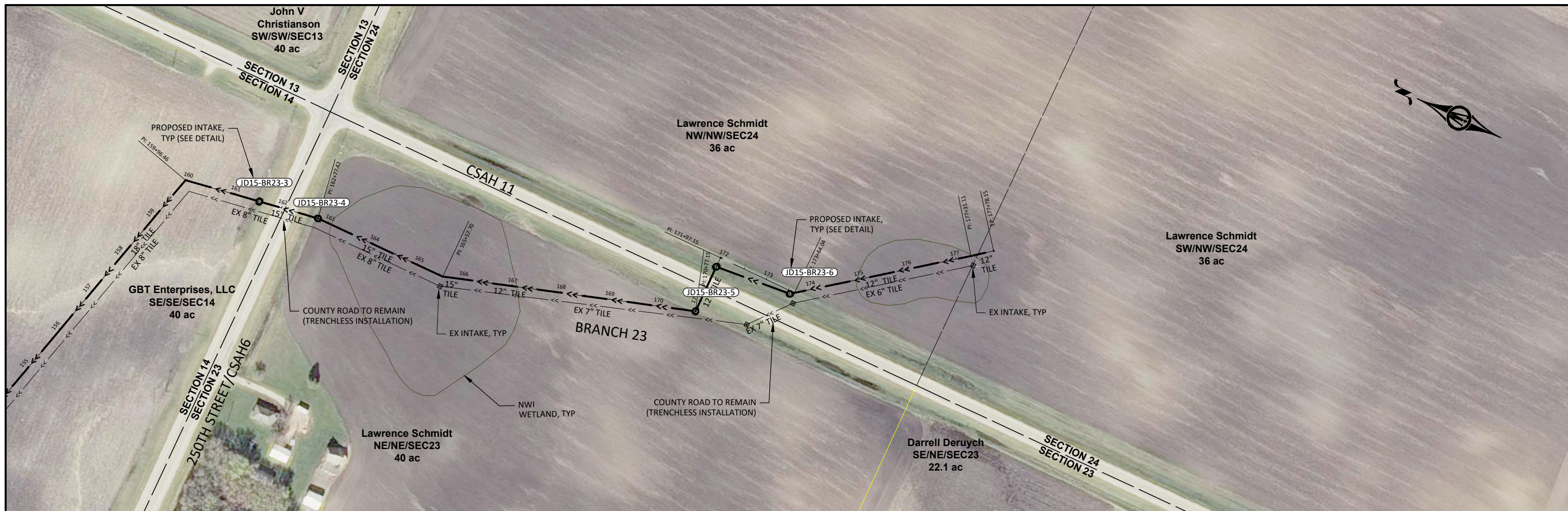


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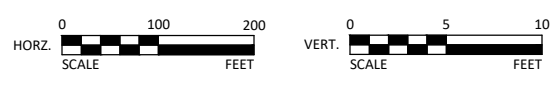
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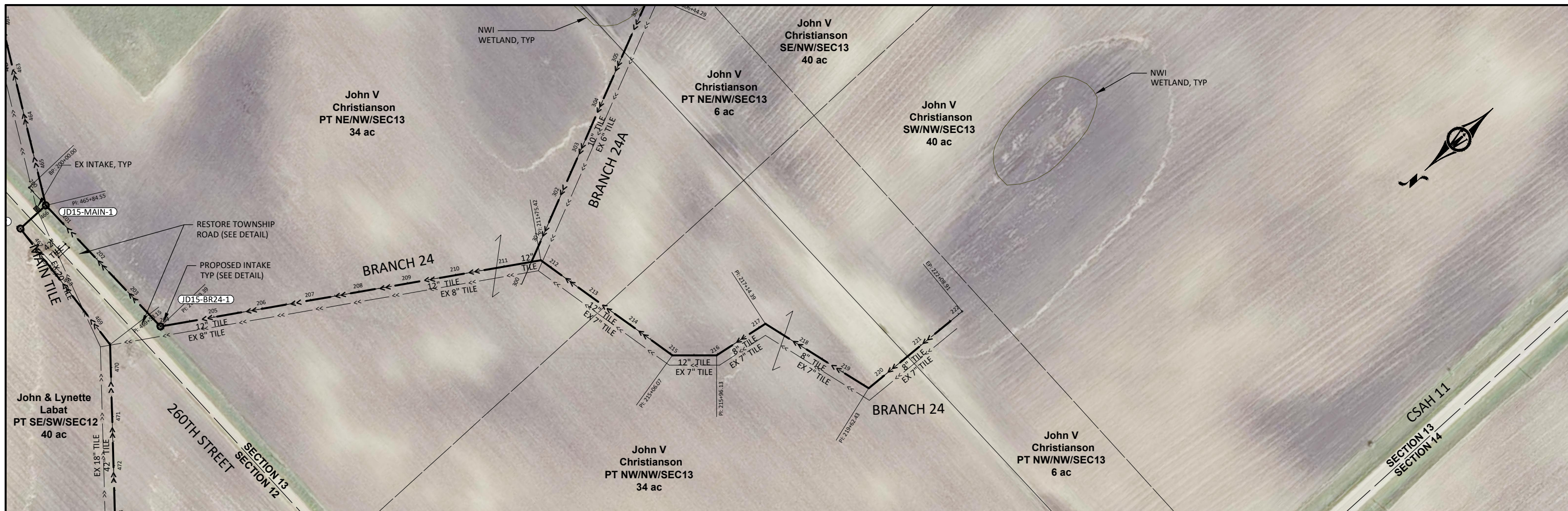


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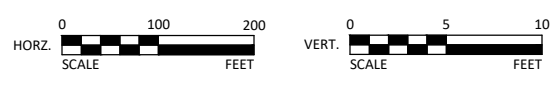
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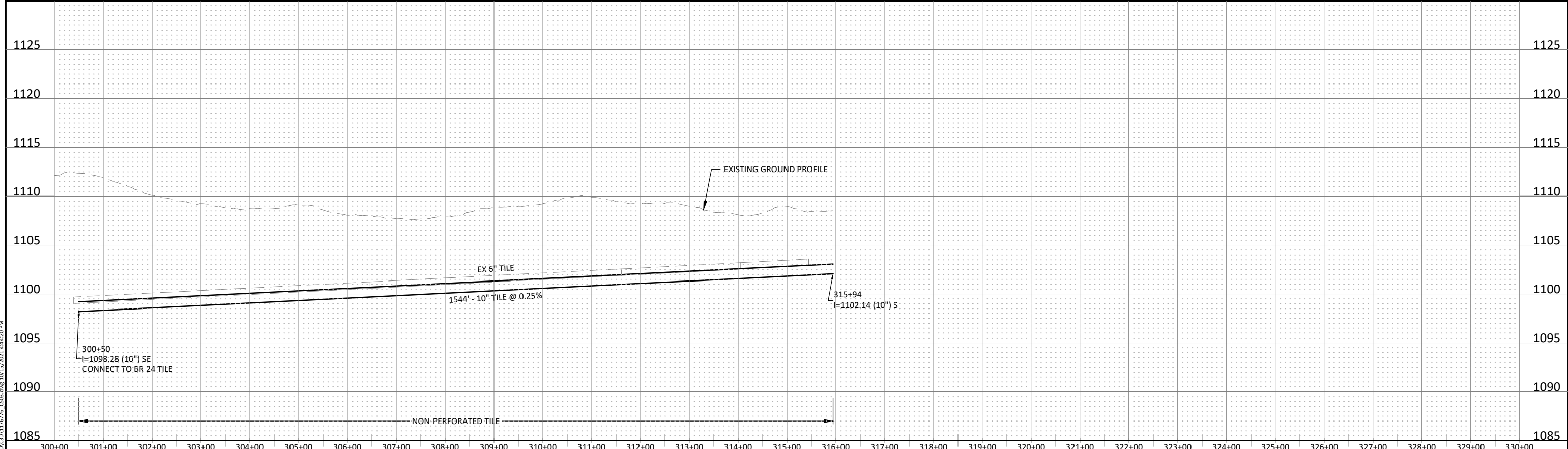


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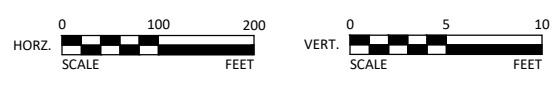
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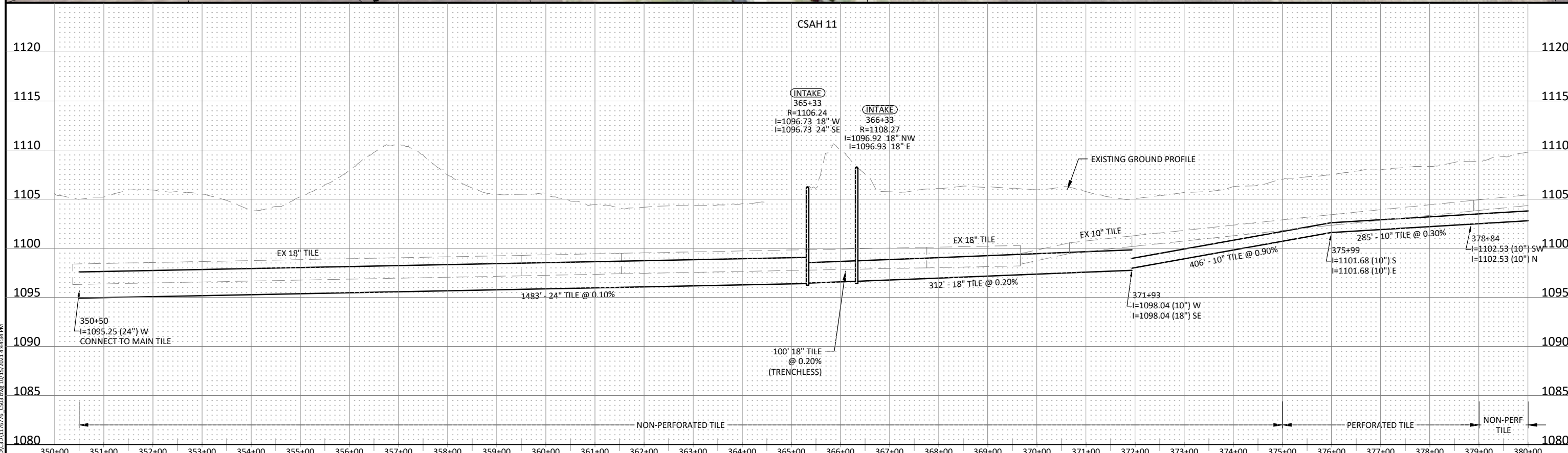
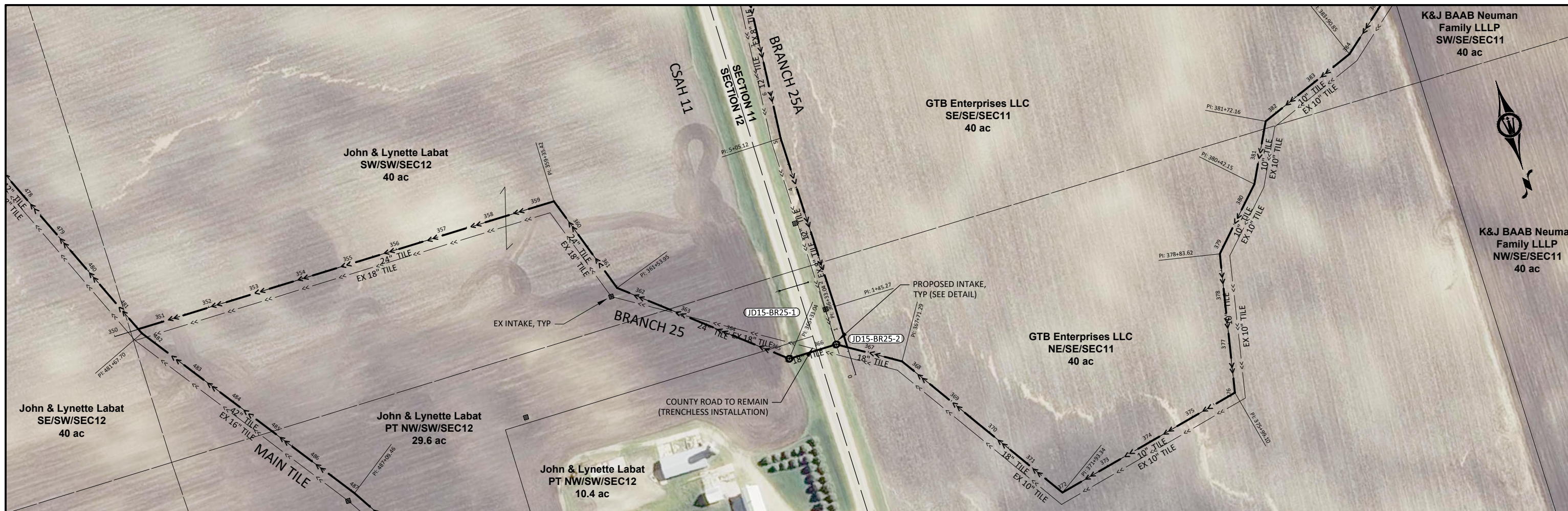


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 SLEEPY EYE, MINNESOTA 56085
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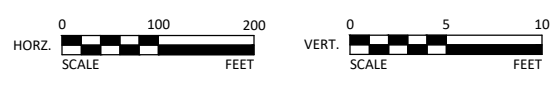
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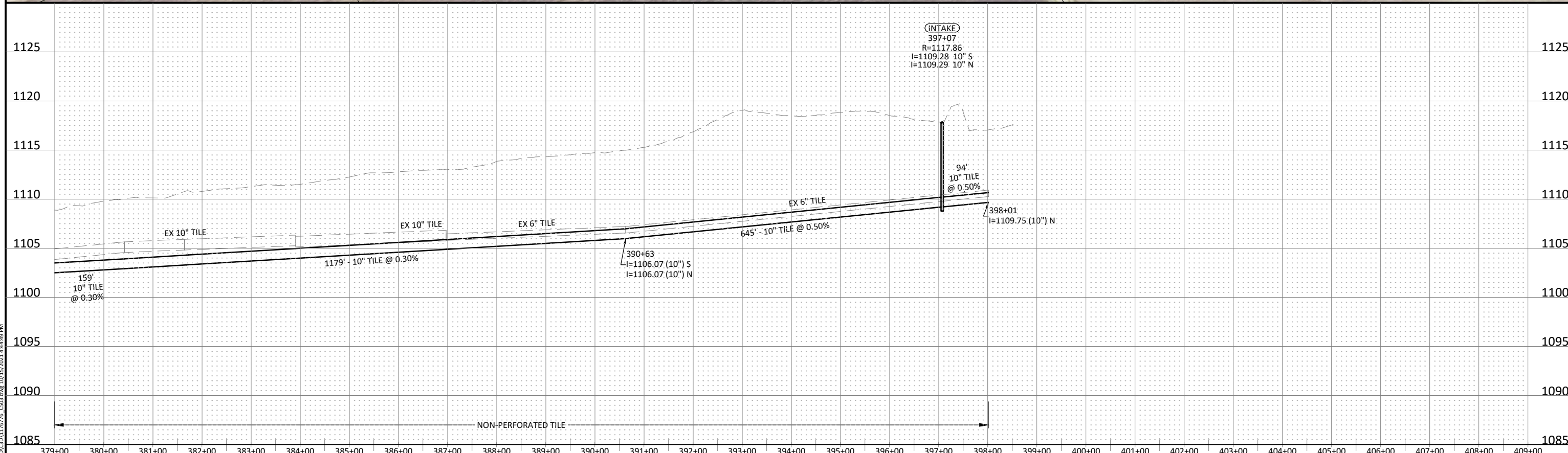
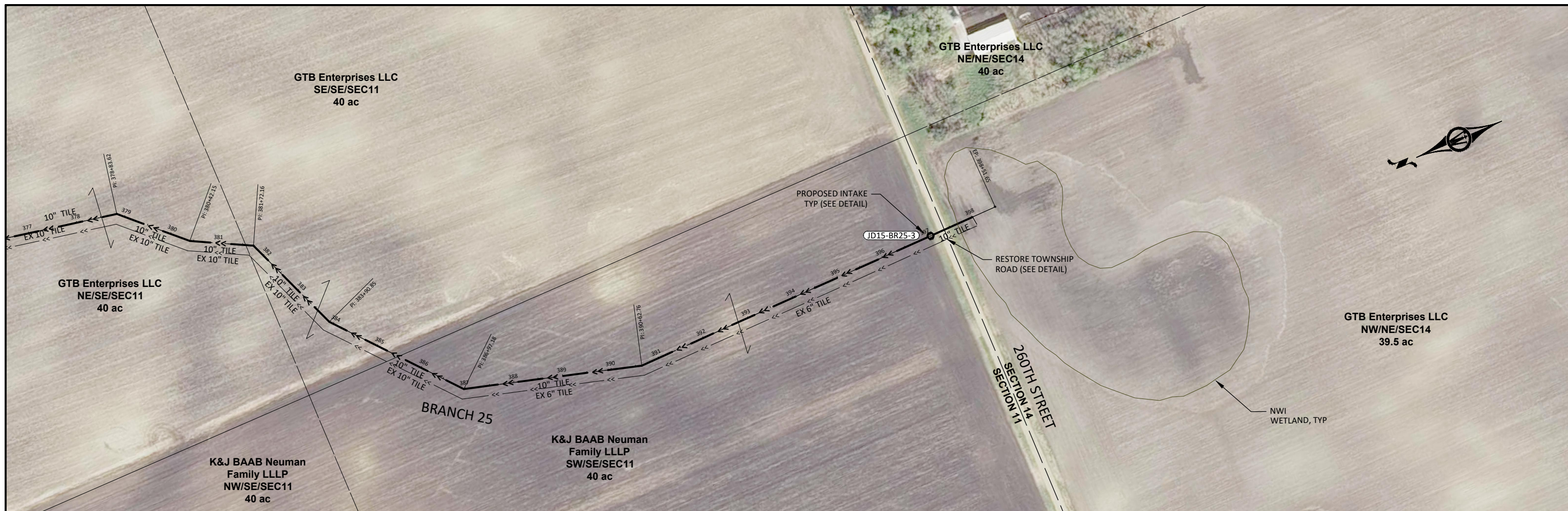


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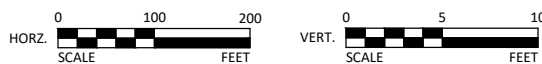
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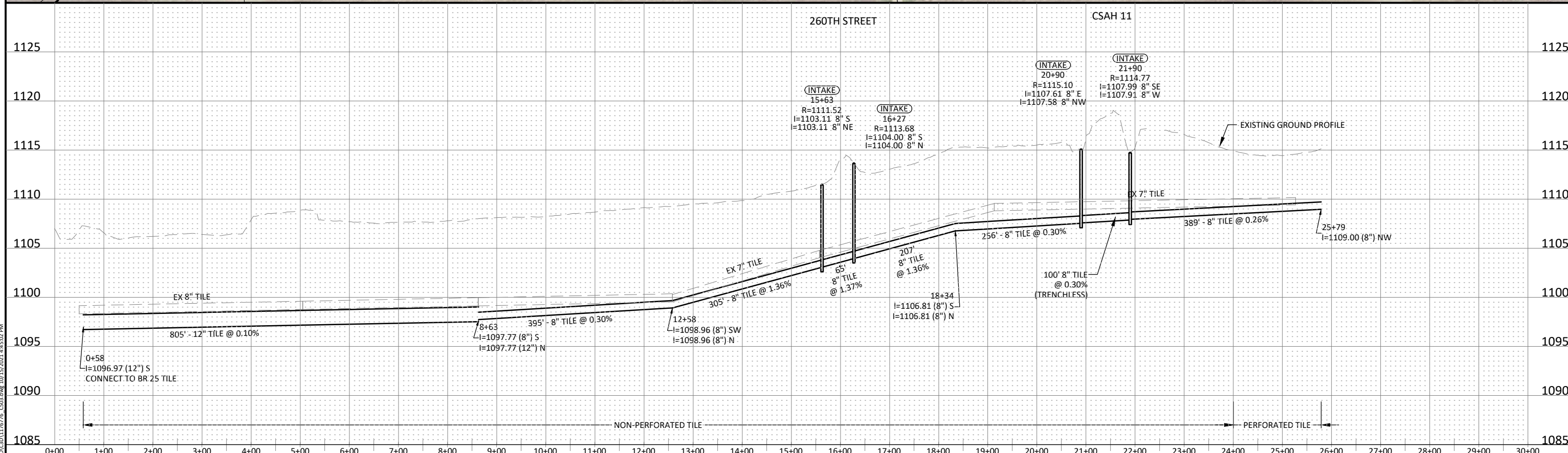
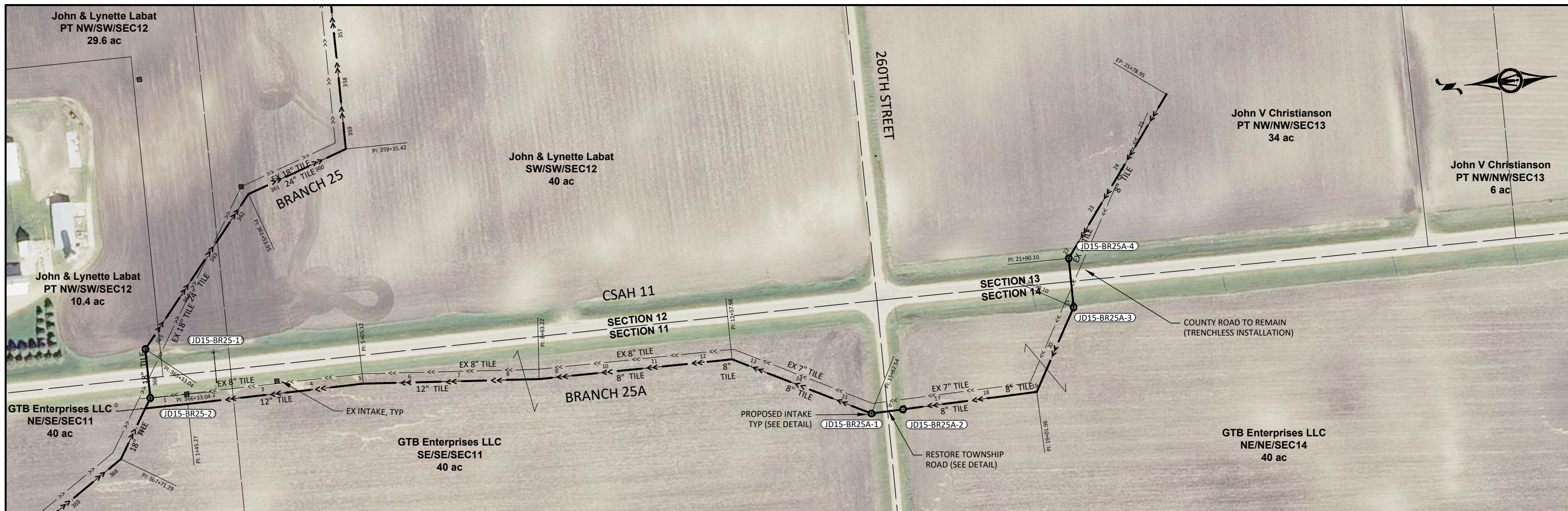


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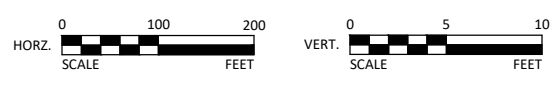
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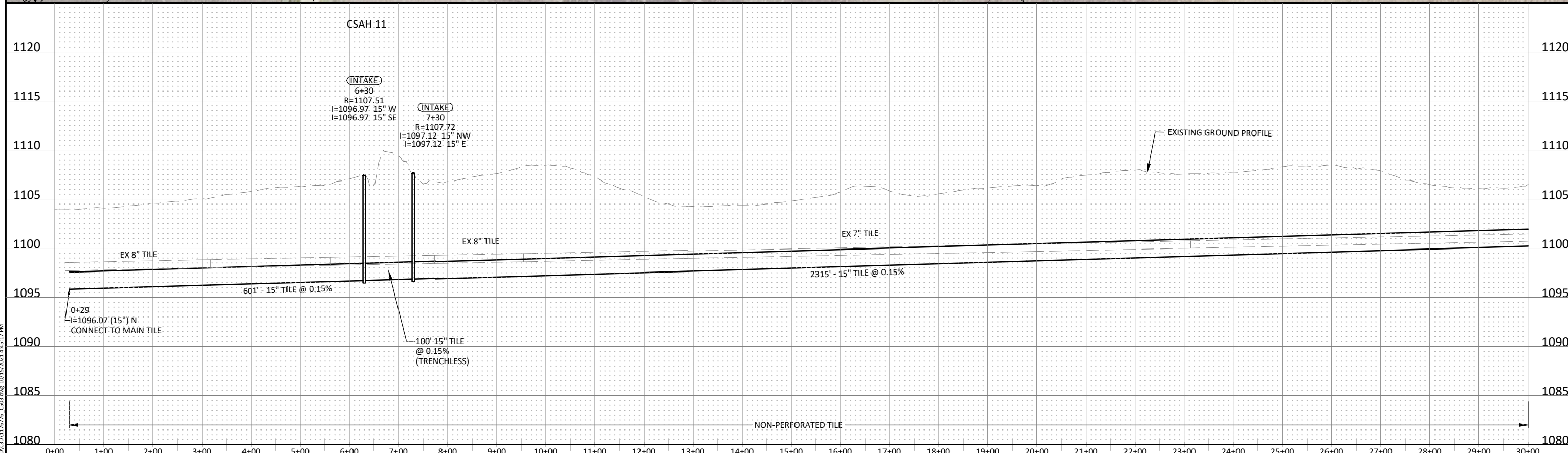
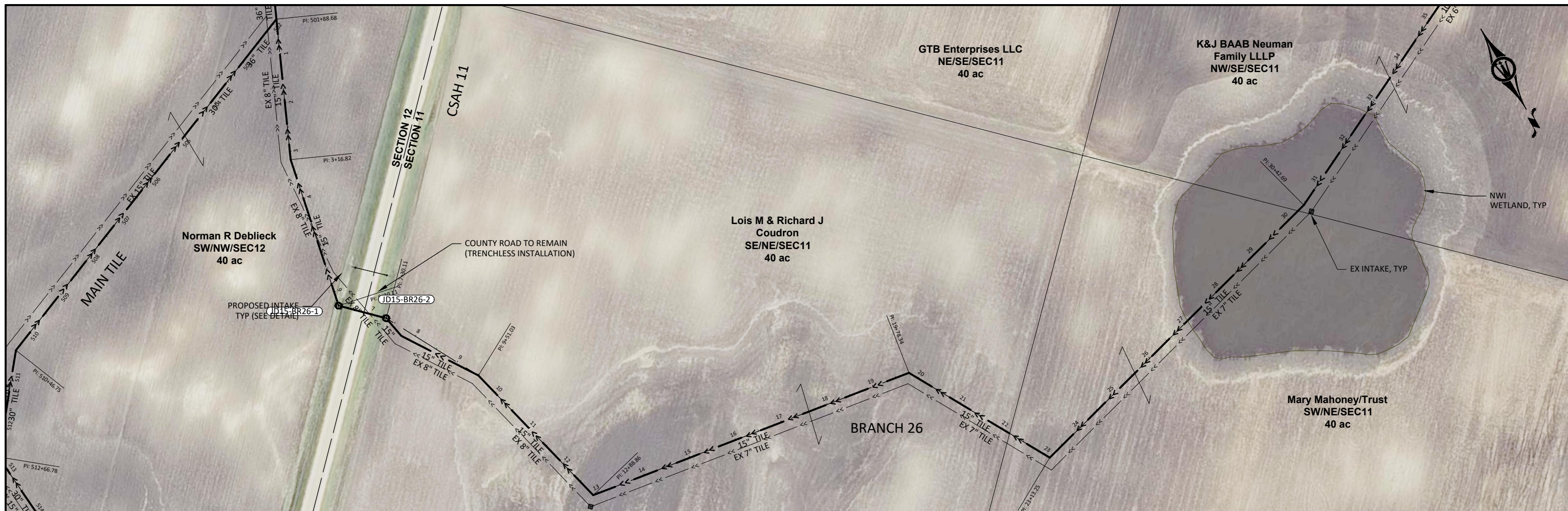


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LLC
NE/SE/SEC24
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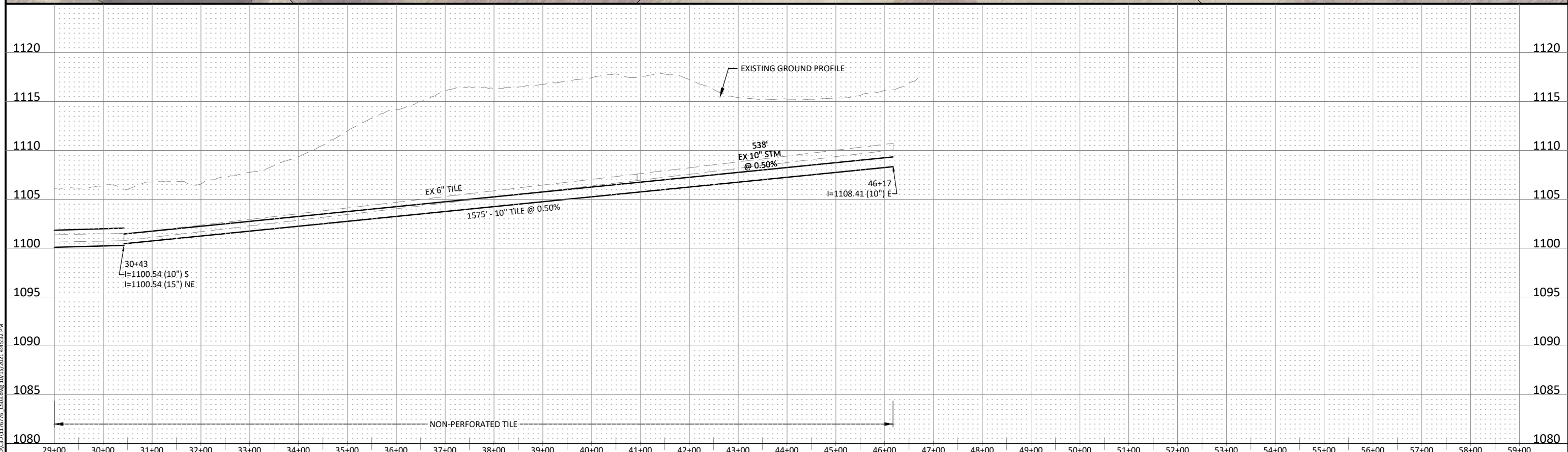
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Family LLLP
SW/SE/SEC11
40 ac

Denny O Living Trust &
LA O Living Trust
SE/SW/SEC11
40 ac

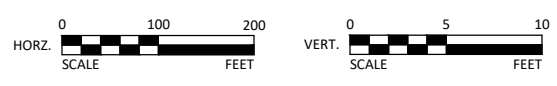
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SW/NE/SEC11
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K&J BAAB Neuman
Family LLLP
NW/SW/SEC11
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Denny O Living Trust &
LA O Living Trust
NE/SW/SEC11
40 ac



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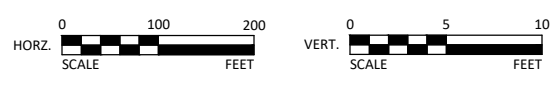
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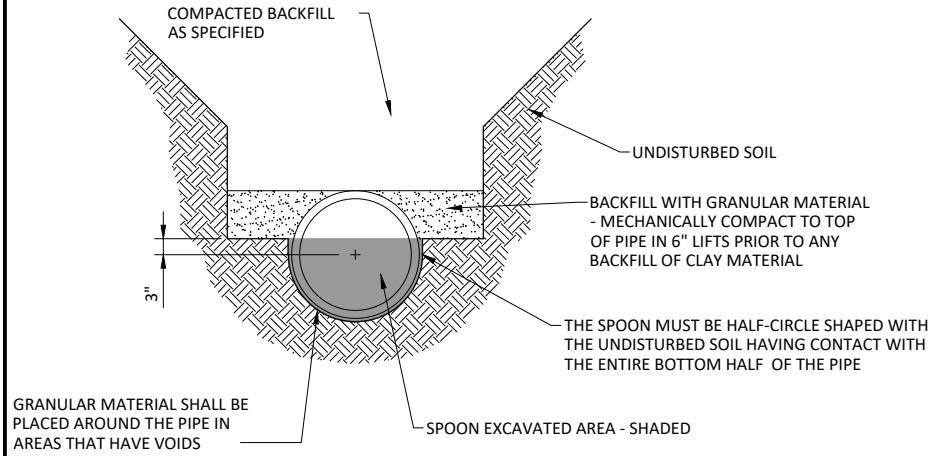


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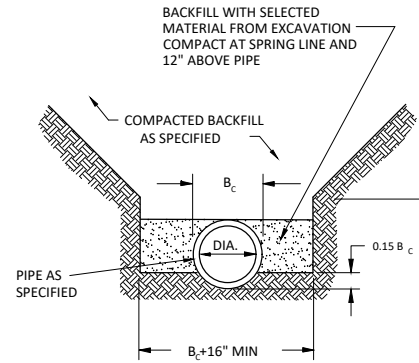
LYON COUNTY, MINNESOTA
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 BRANCH 27

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C5.22



HDPE "SPOON" TRENCH BEDDING DETAIL

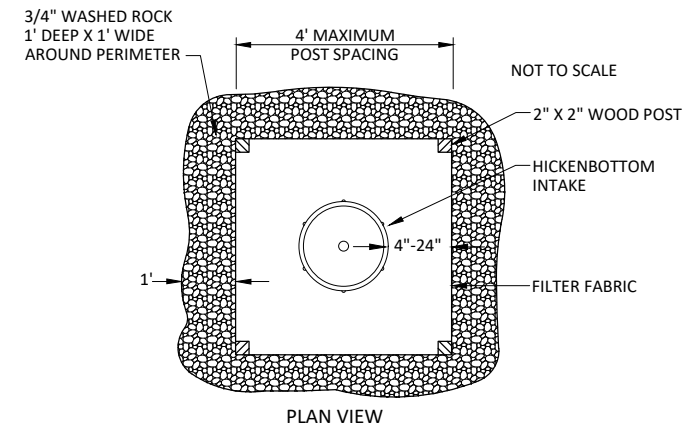
NOT TO SCALE



PIPE DIA.	B
36" OR LESS	$B_c + 24"$
42" TO 54"	$1.5 \times B_c$
60" OR OVER	$B_c + 36"$

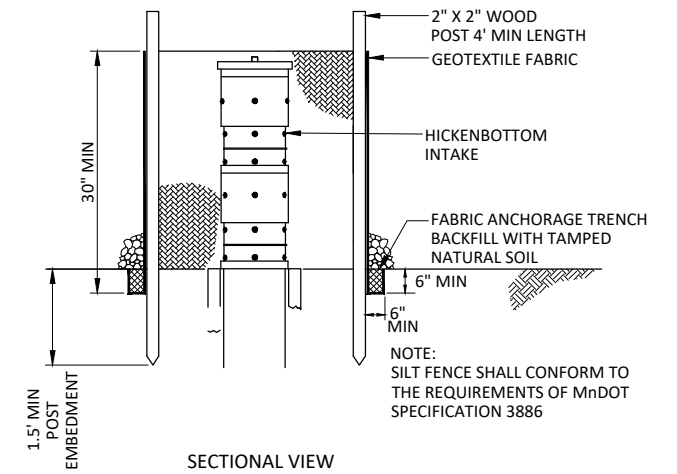
**TRENCH DETAIL
REINFORCED CONCRETE PIPE
CLASS "C" BEDDING CONDITION**

NOT TO SCALE

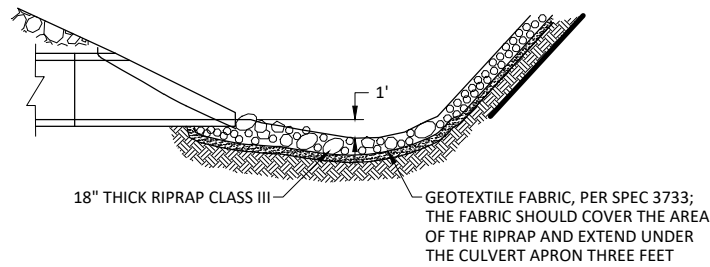


**INLET PROTECTION
PREASSEMBLED SILT FENCE**

NOT TO SCALE

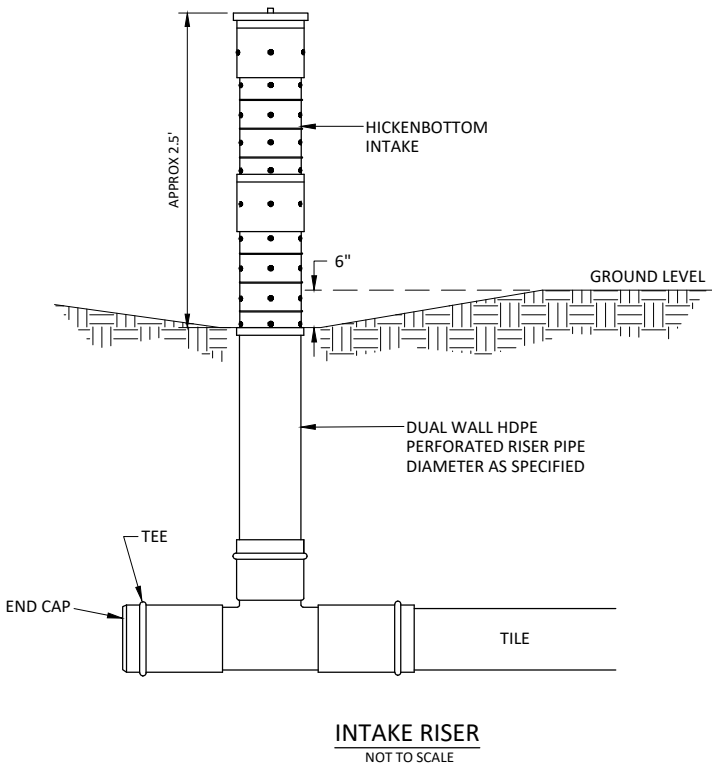


SECTIONAL VIEW



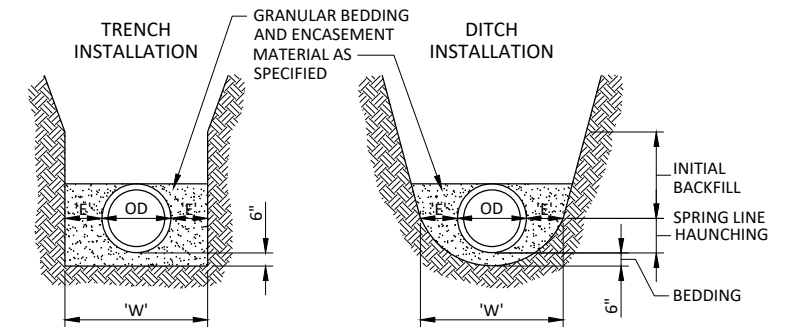
RIPRAP AT RCP CULVERT END

NOT TO SCALE



INTAKE RISER

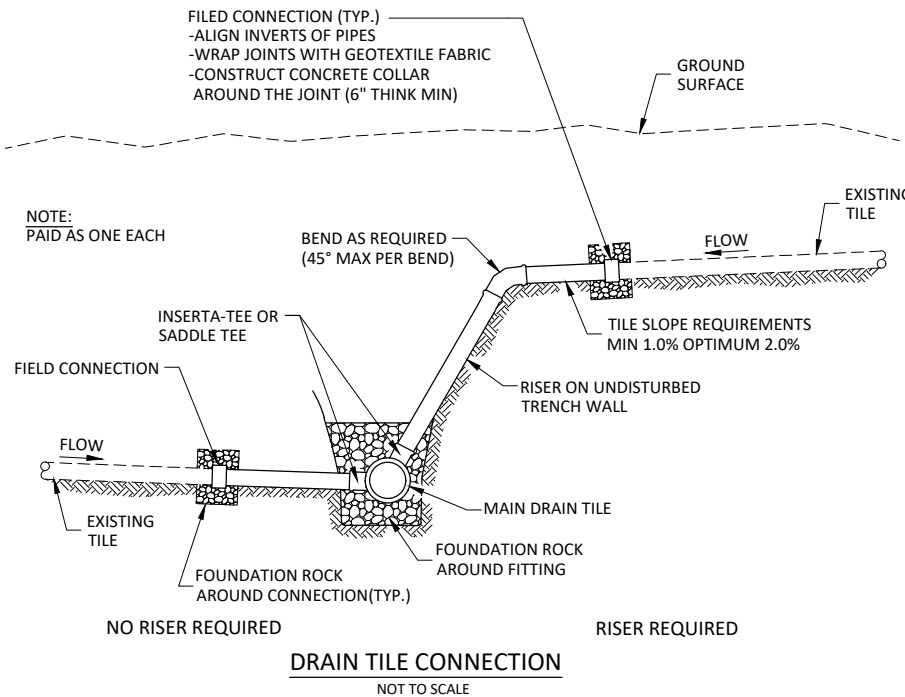
NOT TO SCALE



- NOTES:
- BEDDING AND EMBEDMENT MATERIAL PER SPECIFICATIONS.
 - CONSTRUCTION REQUIREMENTS PER SPEC 2451 MODIFIED SO THAT EMBEDMENT MATERIAL IS COMPACTED IN UNIFORM LIFTS, 8" OR LESS IN DEPTH, LOOSE MEASURE, TO 95% STANDARD PROCTOR DENSITY FROM THE BEDDING TO THE CROWN OF THE PIPE.
 - COST FOR FURNISHING AND INSTALLING GRANULAR BEDDING AND ENCASEMENT MATERIALS SHALL BE INCLUDED IN THE PRICE BID FOR POLYETHYLENE PIPE, PER LINEAL FOOT.

PIPE SIZE	PIPE OD (Nominal)	'E' ENVELOPE WIDTH (Minimum)	MINIMUM TRENCH WIDTH (OD+2E)
4"	4.6"	3"-4"	10"
6"	6.8"	4"-6"	14"
8"	9.5"	4"-6"	20"
10"	11.6"	5"-8"	24"
12"	14.2"	5"-8"	30"
15"	17.7"	5"-8"	34"
18"	22.0"	6"-10"	38"
24"	29.5"	8"-12"	46"
30"	35.4"	8"-12"	60"
36"	41.0"	8"-12"	65"
42"	47.4"	12"-14"	74"

DUAL WALL POLYETHYLENE TRENCH



DRAIN TILE CONNECTION

NOT TO SCALE

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I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MINNESOTA.
PRELIMINARY NOT FOR CONSTRUCTION



1243 CEDAR STREET NE
SLEEPY EYE, MINNESOTA 56085
Phone: (507) 794-5541
Email: SleepyEye@bolton-menk.com
www.bolton-menk.com

DESIGNED	NO.	ISSUED FOR	DATE
SPL			
DRAWN			
SPL_sml			
CHECKED			
BLH			
CLIENT PROJ. NO.			
515.116766			

LYON COUNTY, MINNESOTA
JUDICIAL DITCH NO. 15 IMPROVEMENTS
DETAILS
GENERAL DETAILS

SHEET

C8.01

Exhibit 2: Petition for JD 15 Improvement



Wendland Sellers Law Office

ATTORNEYS AT LAW

BRUCE E. SELLERS
SELLERS@WENDLANDLAW.COM

BLUE EARTH OFFICE:
825 EAST SECOND STREET
P.O. BOX 247
BLUE EARTH, MN 56013
TELEPHONE: (507) 526-2196
FAX: (507) 526-3065

MAPLETON OFFICE:
101 SMITH STREET NE
MAPLETON, MN 56065
TELEPHONE: (507) 524-4110

REPLY TO BLUE EARTH OFFICE

September 6, 2018

E.J. Moberg
Lyon County Auditor/Treasurer
607 West Main St.
Marshall, MN 56258

RE: Improvement Petition for Lyon-Redwood County Joint Judicial Ditch No. 15
Our File No.: 3448.01

Dear Mr. Moberg:

Our office represents petitioners for the proposed improvement of a proposed improvement to Lyon-Redwood County Judicial Ditch No. 15 ("J.D. 15" or "the system"). Enclosed please find the following:

1. Petition for Improvement of Lyon-Redwood County Judicial Ditch No. 15 ("Petition");
2. A Map referred to and incorporated as "Exhibit A" depicting the starting point and general course and terminus of the proposed improvement project which adequately satisfies the requirement under Minn. Stat. §103.215, subd. 4(c)(3);
3. Signature Page of David & Stephanie Leach;
4. Signature Page of Denny O. Living Trust & LA O Living Trust;
5. Signature Page of GBT Enterprises, LLC;
6. Signature Page of John & Lynette Labat;
7. Signature Page of K&J Baab Neuman Family, LLLP;
8. Signature Page of Lois M. & Richard Coudron; and
9. Surety Bond ("Bond").

All information used to determine the watershed boundary were obtained from Bolton & Menk, Inc. This information included the Surface Water Hydrology Atlas from Minnesota State University-Mankato, current Geographical Information Systems software, Lidar Contour Lines, ArcGIS, and original tile maps received from Lyon and Redwood County and landowners. Additionally, I personally cross-referenced the landowner information with the information available through the Lyon and Redwood County GIS websites accessed using the respective online software.

* Qualified Neutral under Rule 114 of Minnesota General Rules of Practice

REAL ESTATE ■ PROBATE ■ ESTATE PLANNING ■ CIVIL LITIGATION ■ DEFENSE OF PUBLIC ENTITIES ■ EMPLOYMENT
■ PRIVATE/PUBLIC DRAINAGE ■ PERSONAL INJURY ■ CORPORATE/BUSINESS ■ CONTRACTS ■ FAMILY LAW

Exhibit A depicts "Tracts" which indicate the number of owners of 40-acre tracts or government lots within the watershed, which is provided by the ArcGIS software. ArcGIS is a geographic information system that provides the infrastructure for making and working with maps and geographic information by compiling geographic data and analyzing mapped information. The parcel data is provided by the individual Counties, and, based on the section information (also provided by the Counties), the parcel areas are "split" to identify the 40 acre "Tracts", and another software program is used to calculate the parcel area for each "Tract" within the information developed by the ArcGIS.

Pursuant to Minn. Stat. §103E.215, Subd. 4(a), the petition must be signed by: (1) at least 26% of the owners of the property affected by the proposed improvements; OR (2) at least 26% of the owners of the property that the proposed improvement passes over; OR (3) the owners of at least 26% of the property area affected by the proposed improvement; OR (4) the owners of at least 26% of the property area that the proposed improvement passes over.

With respect to the adequacy of this petition as it relates to satisfying the requirements of Minn. Stat. §103E.215, Subd. 4, I will address each sub-section of this particular statute.

- (1) at least 26 percent of the owners of the property affected by the proposed improvement;

There are a total of 28 owners affected by the proposed improvement benefited or damaged by the project. I have submitted a petition which includes a total of 6 owners (21.43%) of property affected by the proposed improvement.

- (2) at least 26 percent of the owners of property that the proposed improvement passes over;

There are a total of 11 owners of property that is bordered by, touched by, or is underneath the path of the proposed drainage project. I have submitted a petition which includes a total of 5 owners (45.45%) of property the proposed improvement "passes over".

- (3) the owners of at least 26 percent of the property area affected by the proposed improvement; or

The Lyon-Redwood County Judicial Ditch No. 15 drainage system benefits a total property area consisting of approximately 2,257.60 acres. I have submitted a petition which includes a total of 6 owners owning a total of approximately 968.50 acres (42.90%) of the property area affected by the proposed improvement.

- (4) the owners of at least 26 percent of the property area that the proposed improvement passes over.

The proposed improvement drainage project borders, touches, or is underneath the path of a total property area consisting of approximately 1,602.90 acres. I have submitted a petition which includes a total of 5 owners owning a total of approximately 771.00 acres (48.10%) of the property area that the proposed improvement passes over.

Therefore, I believe the petition satisfies the requirements of Minn. Stat. §103E.215, Subd. 4 by containing signatures the owners of (2) at least 26 percent of the owners of property that the proposed improvement passes over; (3) the owners of at least 26 percent of the property area affected by the proposed improvement; and (4) the owners of at least 26 percent of the property area that the proposed improvement passes over.

September 6, 2018

Page | 3

I have also enclosed a spreadsheet which details the information provided above. After you have had an adequate opportunity to review and verify the information provided, I would request that this Petition be presented to the Lyon-Redwood County Joint Board of Commissioners acting as Drainage Authority for Judicial Ditch No. 15.

Bill Helget, civil engineer with Bolton & Menk, Inc., has been involved with this proposed improvement project from the initial stages, and has provided the preliminary review and feasibility study on behalf of the petitioners for their review and consideration, and that information was used by petitioners to assist them with their decision to move forward with this petition. The Petitioners would request that Bolton & Menk, Inc. be appointed as engineers for the proposed improvement project.

Please contact me at your earliest convenience if you require further information or believe there are issues that need to be addressed. Thank you in advance for your consideration and prompt attention with this matter.

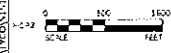
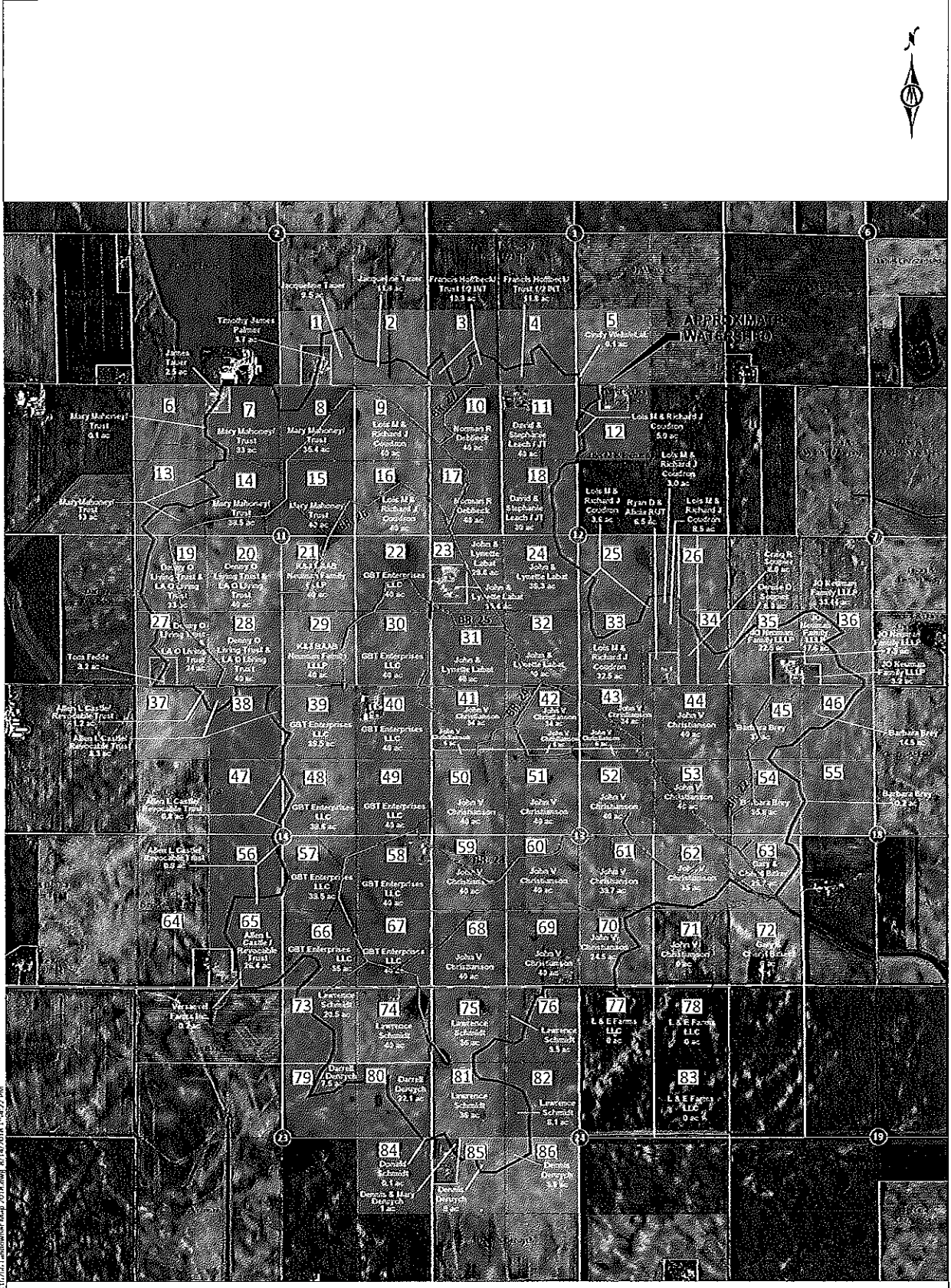
Sincerely yours,

WENDLAND SELLERS LAW OFFICE

A handwritten signature in black ink, appearing to read 'Bruce E. Sellers', written over a horizontal line.

Bruce E. Sellers
FOR THE FIRM

Enc.



M:\VCO\151104\Map\CDR\C08110265_Landowner Map 2018.dwg 8/14/2018 1:48:20 PM

**PETITION FOR AN IMPROVEMENT OF
LYON-REDWOOD COUNTY JOINT JUDICIAL DITCH NO. 15**

TO THE LYON-REDWOOD JOINT COUNTY BOARD OF COMMISSIONERS AS
DRAINAGE AUTHORITY IN RELATION TO LYON-REDWOOD COUNTY JOINT
JUDICIAL DITCH NO. 15

The Petitioners herein respectfully represent:

WHEREAS, this Petition relates to the Mainline open ditch and Mainline subsurface tile of Lyon-Redwood County Joint Judicial Ditch No. 15 and its branches ("the system") located in Section 1, 2, 11, 12, 13, 14, 23, and 24 of Clifton Township in Lyon County, and Sections 7 and 18 of Westline Township in Redwood County, with the intention of improving the system by increasing the drain capacity of these Mainlines and Branches, specifically Branch 22, Branch 23, Branch 24, Branch 24A, Branch 25, Branch 25A, Branch 26, and Branch 27; and

WHEREAS, the system consists of subsurface drainage tile having insufficient capacity or requiring enlarging to furnish sufficient capacity or a better outlet for portions of the system, and the Petitioners propose to increase the capacity of the system and improve the outlet into the existing open ditch located in the Southwest Quarter of the Southwest Quarter (SW ¼ SW ¼) of Section 18 of Westline Township, Redwood County; and

WHEREAS, the starting point, general course and terminus of the proposed improvement project for the system is depicted on Exhibit A which is attached hereto for reference; and

WHEREAS, this Petition is signed by: (1) at least 26% of the owners of the property affected by the proposed improvements; (2) at least 26% of the owners of the property that the proposed improvement passes over; (3) the owners of at least 26% of the property area affected by the proposed improvement; and (4) the owners of at least 26% of the property area that the proposed improvement passes over; and

WHEREAS, Petitioners further request that the engineer be specifically ordered to determine and offer alternative proposals for the consideration of the Drainage Authority which relate to the improvement of the drain capacity of the system that the engineer deems feasible, if any, including repairs to branches and alternative outlets, if any; and

WHEREAS, Petitioners provide herewith a corporate surety bond in the face amount of \$50,000 payable to the Drainage Authority of Lyon-Redwood County Joint Judicial Ditch No. 15, said bond conditioned to pay the costs incurred if the proceeding are dismissed or a contract is not awarded to allow the costs incurred to exceed the amount of the bond and that they will cause additional bond to be filed if it appears that the costs exceed the amount of the bond; and

WHEREAS, Petitioners have been informed and understand that they may not withdraw as a Petitioner at any time after this Petition is accepted by the Drainage Authority. Petitioners further acknowledge that if the proposed drainage project is not constructed, they are, and each

Petitioner is, liable to the Drainage Authority for all of the costs incurred including engineering, legal and miscellaneous fees and expenses in relation to this Petition as outlined under Minnesota Statutes 103E; and

WHEREAS, Petitioners assert that the proposed Improvement Project will benefit and be useful to the public and will promote the public health; and

WHEREAS, Petitioners recognize that water storage benefits the entire system and requests that the engineer appointed by the Drainage Authority consider water storage designs into the Improvement Project. Petitioners further request and will support actively seeking outside funding for said water storage; and

WHEREAS, Petitioners request, pursuant to Minn. Stat. §103E.215, subd. 6, that separable maintenance be used for those locations where existing tiles are being replaced with open ditch and/or new tile. Petitioners request that the engineer be ordered to determine a proportionate share of life span based on the existing condition versus the tiles original designed capacity. It is recommended by Petitioners that the separable maintenance to be paid by the entire system is that percentage of the in-place tile whose life span capacity has been used and that the improvement pay for that percentage of the tile, life span or capacity that still is in repair. The landowners are requesting that a percentage be paid as separable maintenance by the entire system and a percentage be paid for by the improvement benefits as determined by the engineer and viewers; and

WHEREAS, a separable part of the drainage system may need repair. The engineer appointed by the Drainage Authority is asked to include in detailed survey report and statement showing the proportionate estimated cost of the proposed improvement required to repair the separable part of the existing system and the estimated proportionate share of the cost of the added work required for the improvement; and

WHEREAS, the names and addresses of owners of the 40 acre tracts that the Improvement passes over (indicated with a *) and affects, as depicted on the attached Exhibit A, are as follows:

Tract 1 Owner/Address:	Jacqueline Tauer 3336 270 th St. Marshall, MN 56258
---------------------------	--

Tract 1 Owner/Address:	Timothy James Palmer 3362 270 th St. Marshall, MN 56258
---------------------------	--

Tract 2
Owner/Address: Jacqueline Tauer
3336 270th St.
Marshall, MN 56258

Tract 3
Owner/Address: Francis Hoffbeck and Evelyn Hoffbeck Trust
Heritage Point, #204
207 N. 4th St.
Marshall, MN 56258

Tract 4
Owner/Address: Francis Hoffbeck and Evelyn Hoffbeck Trust
Heritage Point, #204
207 N. 4th St.
Marshall, MN 56258

Tract 5
Owner/Address: Cindy Welu, et al
11255 Hwy 68
Milroy, MN 56263

Tract 6
Owner/Address: Mary Mahoney Trust and
Mary Mahoney & Kathleen Cotste
764 Forest Ave.
Buffalo, NY 14209

Tract 7
Owner/Address: James Tauer
3336 270th St.
Marshall, MN 56258

Tract 7
Owner/Address: Mary Mahoney Trust and
Mary Mahoney & Kathleen Cotste
764 Forest Ave.
Buffalo, NY 14209

Tract 8*
Owner/Address: Mary Mahoney Trust and
Mary Mahoney & Kathleen Cotste
764 Forest Ave.
Buffalo, NY 14209

Tract 9*

Owner/Address:

Lois M. & Richard J. Coudron
3172 County Rd. 6
Marshall, MN 56258

Tract 10*

Owner/Address:

Norman R. Deblieck
767 N. 3rd St.
Tracy, MN 56175

Tract 11

Owner/Address:

David & Stephanie Leach
3431 270th St.
Milroy, MN 56263

Tract 12

Owner/Address:

Lois M. & Richard J. Coudron
3172 County Rd. 6
Marshall, MN 56258

Tract 13*

Owner/Address:

Mary Mahoney Trust and
Mary Mahoney & Kathleen Cotste
764 Forest Ave.
Buffalo, NY 14209

Tract 14*

Owner/Address:

Mary Mahoney Trust and
Mary Mahoney & Kathleen Cotste
764 Forest Ave.
Buffalo, NY 14209

Tract 15*

Owner/Address:

Mary Mahoney Trust and
Mary Mahoney & Kathleen Cotste
764 Forest Ave.
Buffalo, NY 14209

Tract 16*

Owner/Address:

Lois M. & Richard J. Coudron
3172 County Rd. 6
Marshall, MN 56258

Tract 17*
Owner/Address: Norman R. Deblieck
767 N. 3rd St.
Tracy, MN 56175

Tract 18
Owner/Address: David & Stephanie Leach
3431 270th St.
Milroy, MN 56263

Tract 19*
Owner/Address: Denny O. Living Trust and LA O. Living Trust
2257 Co. Rd. 9
Marshall, MN 56258

Tract 20*
Owner/Address: Denny O. Living Trust and LA O. Living Trust
2257 Co. Rd. 9
Marshall, MN 56258

Tract 21*
Owner/Address: K&J Baab Neuman Family, LLLP
3259 260th St.
Marshall, MN 56258

Tract 22*
Owner/Address: GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 23*
Owner/Address: John & Lynette Labat
2634 Co. Rd. 11
Milroy, MN 56263

Tract 24
Owner/Address: John & Lynette Labat
2634 Co. Rd. 11
Milroy, MN 56263

Tract 25
Owner/Address: Lois M. & Richard J. Coudron
3172 County Rd. 6
Marshall, MN 56258

Tract 26

Owner/Address:

Lois M. & Richard J. Coudron
3172 County Rd. 6
Marshall, MN 56258

Tract 27*

Owner/Address:

Denny O. Living Trust and LA O. Living Trust
2257 Co. Rd. 9
Marshall, MN 56258

Tract 27

Owner/Address:

Tom Fedde
3308 260th St.
Marshall, MN 56258

Tract 28*

Owner/Address:

Denny O. Living Trust and LA O. Living Trust
2257 Co. Rd. 9
Marshall, MN 56258

Tract 29*

Owner/Address:

K&J Baab Neuman Family, LLLP
3259 260th St.
Marshall, MN 56258

Tract 30*

Owner/Address:

GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 31*

Owner/Address:

John & Lynette Labat
2634 Co. Rd. 11
Milroy, MN 56263

Tract 32*

Owner/Address:

John & Lynette Labat
2634 Co. Rd. 11
Milroy, MN 56263

Tract 33
Owner/Address: Lois M. & Richard J. Coudron
3172 County Rd. 6
Marshall, MN 56258

Tract 34
Owner/Address: Craig R. Soupir
17787 Co. Hwy 30
Vesta, MN 56292

Tract 34
Owner/Address: Denise D. Soupir
23595 Oak Lane
Glenwood, MN 56334

Tract 34
Owner/Address: Lois M. & Richard J. Coudron
3172 County Rd. 6
Marshall, MN 56258

Tract 34
Owner/Address: Ryan D. & Alicia R. Eliason
3476 260th St.
Milroy, MN 56263

Tract 35
Owner/Address: Jo Neuman Family LLLP and
K&J Baab Neuman Family LLLP
1240 Patricia Ct.
Marshall, MN 56258

Tract 36
Owner/Address: Jo Neuman Family LLLP and
K&J Baab Neuman Family LLLP
1240 Patricia Ct.
Marshall, MN 56258

Tract 37
Owner/Address: Allen L. Castle Revocable Trust and
Ruth A. Castle Revocable Trust
32138 Stalker View Ln.
Underwood, MN 56586

Tract 38

Owner/Address:

Allen L. Castle Revocable Trust and
Ruth A. Castle Revocable Trust
32138 Stalker View Ln.
Underwood, MN 56586

Tract 39*

Owner/Address:

GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 40*

Owner/Address:

GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 41*

Owner/Address:

John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 42*

Owner/Address:

John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 43*

Owner/Address:

John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 44

Owner/Address:

John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 45*

Owner/Address:

Barbara Brey
26087 Co. Hwy. 15
Milroy, MN 56263-1162

Tract 46
Owner/Address: Barbara Brey
26087 Co. Hwy. 15
Milroy, MN 56263-1162

Tract 47
Owner/Address: Allen L. Castle Revocable Trust and
Ruth A. Castle Revocable Trust
32138 Stalker View Ln.
Underwood, MN 56586

Tract 48
Owner/Address: GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 49*
Owner/Address: GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 50
Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 51*
Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 52*
Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 53*
Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 54*

Owner/Address: Barbara Brey
26087 Co. Hwy. 15
Milroy, MN 56263-1162

Tract 55

Owner/Address: Barbara Brey
26087 Co. Hwy. 15
Milroy, MN 56263-1162

Tract 56

Owner/Address: Allen L. Castle Revocable Trust and
Ruth A. Castle Revocable Trust
32138 Stalker View Ln.
Underwood, MN 56586

Tract 57*

Owner/Address: GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 58*

Owner/Address: GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 59*

Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 60*

Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 61*

Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 62*
Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 63*
Owner/Address: Gary & Cheryl Bitker
10109 Co. Hwy. 32
Milroy, MN 56263

Tract 64
Owner/Address: OMITTED

Tract 65
Owner/Address: Allen L. Castle Revocable Trust and
Ruth A. Castle Revocable Trust
32138 Stalker View Ln.
Underwood, MN 56586

Tract 65
Owner/Address: Versaevel Farms, Inc.
c/o Joseph Versaevel
3328 Co. Rd. 6
Marshall, MN 56258

Tract 66*
Owner/Address: GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 67*
Owner/Address: GBT Enterprises, LLC
2756 210th St.
Dawson, MN 56232

Tract 68
Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 69
Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 70
Owner/Address: John V. Christianson
3442 Co. Rd. 6
Milroy, MN 56263

Tract 71
Owner/Address: OMITTED

Tract 72
Owner/Address: OMITTED

Tract 73*
Owner/Address: Lawrence Schmidt
3435 Co. Rd. 6
Milroy, MN 56263

Tract 74*
Owner/Address: Lawrence Schmidt
3435 Co. Rd. 6
Milroy, MN 56263

Tract 75*
Owner/Address: Lawrence Schmidt
3435 Co. Rd. 6
Milroy, MN 56263

Tract 76
Owner/Address: Lawrence Schmidt
3435 Co. Rd. 6
Milroy, MN 56263

Tract 77
Owner/Address: OMITTED

Tract 78
Owner/Address: OMITTED

Tract 79
Owner/Address: Darrell Deruyck
15564 S. 45th St.
Afton, MN 55001

Tract 80
Owner/Address: Darrell Deruyck
15564 S. 45th St.
Afton, MN 55001

Tract 81*
Owner/Address: Lawrence Schmidt
3435 Co. Rd. 6
Milroy, MN 56263

Tract 82
Owner/Address: Lawrence Schmidt
3435 Co. Rd. 6
Milroy, MN 56263

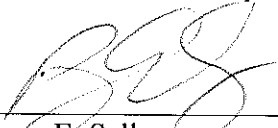
Tract 83
Owner/Address: OMITTED

Tract 84
Owner/Address: Donald E. & Jean M. Schmidt
3360 240th St.
Milroy, MN 56263

Tract 85
Owner/Address: Dennis & Mary Deruyck
P.O. Box 155
Milroy, MN 56263

Tract 86
Owner/Address: Dennis Deruyck
P.O. Box 155
Milroy, MN 56263

NOW THEREFORE, we, as Petitioners, ask the Lyon County Auditor to present this petition to the joint county board (after examination by its legal counsel) for the formation and appointment of members of the Lyon and Redwood Joint County Board of Commissioners to act together as the drainage authority to oversee this improvement project proceedings, and to further appoint Bill Helget, Bolton & Menk, or, in the alternative, another engineer skilled in drainage matters to examine the proposed work.



Bruce E. Sellers
Attorney for Petitioners
Wendland Sellers Law Office
825 East Second Street, P.O. Box 247
Blue Earth, MN 56013
507-526-2196

This petition is prepared by:
Bruce E. Sellers, Attorney at Law
Wendland Sellers Law Office
825 East Second Street, P.O. Box 247
Blue Earth, MN 56013
507-526-2196

PIN	TRACT NO.	OWNER	Affected Property Owners	Affected Property Owners Received	Passed Over Property Owners	Passed Over Property Owners Received	Total Affected Property Area	Affected Property Area Received	Total Passed Over Property Area	Passed Over Property Area Received
02-002001-0	1	JACQUELINE TAUER	1				9.50			
02-002001-1	1	TIMOTHY JAMES PALMER	1				3.70			
02-002001-0	2	JACQUELINE TAUER					11.80			
02-001001-0	3	FRANCIS HOFFBECK TRUST AND EVELYN HOFFBECK TRUST	1				10.30			
02-001001-0	4	FRANCIS HOFFBECK TRUST AND EVELYN HOFFBECK TRUST					11.80			
02-001003-0	5	CINDY WELU ET AL	1				0.10			
02-011004-0	6	MARY MAHONEY TRUST AND MARY MAHONEY AND KATHLEEN COTSTIE	1				0.10			
02-011004-1	7	JAMES TAUER	1				2.50			
02-011004-0	7	MARY MAHONEY TRUST AND MARY MAHONEY AND KATHLEEN COTSTIE					33.00			
02-011004-0	8	MARY MAHONEY TRUST AND MARY MAHONEY AND KATHLEEN COTSTIE	1	1	1		35.40	35.40	35.40	0.00
02-011001-0	9	LOIS M & RICHARD J COUDRON	1	1	1		40.00	40.00	40.00	40.00
02-012002-1	10	NORMAN R DEBLECK	1	1	1		40.00	40.00	40.00	0.00
02-012002-0	11	DAVID & STEPHANIE LEACH	1	1			40.00	40.00		
02-012001-2	12	LOIS M & RICHARD J COUDRON					5.00	5.00		
02-011004-0	13	MARY MAHONEY TRUST AND MARY MAHONEY AND KATHLEEN COTSTIE					13.00		13.00	0.00
02-011004-0	14	MARY MAHONEY TRUST AND MARY MAHONEY AND KATHLEEN COTSTIE					38.50		38.50	0.00
02-011004-0	15	MARY MAHONEY TRUST AND MARY MAHONEY AND KATHLEEN COTSTIE					40.00		40.00	0.00
02-011001-0	16	LOIS M & RICHARD J COUDRON					40.00	40.00	40.00	40.00
02-012002-1	17	NORMAN R DEBLECK					40.00		40.00	0.00
02-012002-0	18	DAVID & STEPHANIE LEACH					30.00	30.00		
02-011003-0	19	DENNY O LIVING TRUST AND LA O LIVING TRUST	1	1	1		33.00	33.00	33.00	33.00
02-011003-0	20	DENNY O LIVING TRUST AND LA O LIVING TRUST					40.00	40.00	40.00	40.00
02-011002-1	21	K&J BAAB NEUMAN FAMILY LLLP	1	1	1		40.00	40.00	40.00	40.00
02-011002-0	22	GBT ENTERPRISES LLC	1	1	1		40.00	40.00	40.00	40.00
02-012004-1	23	JOHN & LYNETTE LABAT	1	1	1		10.40	10.40	10.40	10.40
02-012004-0	23	JOHN & LYNETTE LABAT					29.60	29.60	29.60	29.60
02-012004-0	24	JOHN & LYNETTE LABAT					36.30	36.30		
02-012003-3	25	LOIS M & RICHARD J COUDRON					3.60	3.60		
02-012003-3	26	LOIS M & RICHARD J COUDRON					3.00	3.00		
02-011003-0	27	DENNY O LIVING TRUST AND LA O LIVING TRUST					24.00	24.00	24.00	24.00
02-011005-0	27	TOM FEDDE	1				3.20			
02-011003-0	28	DENNY O LIVING TRUST AND LA O LIVING TRUST					40.00	40.00	40.00	40.00
02-011002-1	29	K&J BAAB NEUMAN FAMILY LLLP					40.00	40.00	40.00	40.00
02-011002-0	30	GBT ENTERPRISES LLC					40.00	40.00	40.00	40.00
02-012004-0	31	JOHN & LYNETTE LABAT					40.00	40.00	40.00	40.00
02-012004-0	32	JOHN & LYNETTE LABAT					40.00	40.00	40.00	40.00
02-012003-3	33	LOIS M & RICHARD J COUDRON					32.50	32.50		
02-012003-4	34	CRAIG R SOUPIR	1				8.00			

02-012003-2	34	DENNIS D SOUPIR		1					8.00			
02-012003-3	34	LOIS M & RICHARD J COUDRON						8.50			8.50	
02-012003-1	34	RYAN D & ALICIA R ELJASON		1				6.50				
74-007-3040	35	JO NEUMAN FAMILY LLLP AND K&J BAAB NEUMAN FAMILY LLLP		1				22.50				
74-007-3020	35	JO NEUMAN FAMILY LLLP AND K&J BAAB NEUMAN FAMILY LLLP						7.30				
74-007-3040	36	JO NEUMAN FAMILY LLLP AND K&J BAAB NEUMAN FAMILY LLLP						17.60				
74-007-3020	36	JO NEUMAN FAMILY LLLP AND K&J BAAB NEUMAN FAMILY LLLP						3.20				
02-014002-0	37	ALLEN L CASTLE REVOCABLE TRUST AND RUTH A CASTLE REVOCABLE TRUST		1				1.20				
02-014002-0	38	ALLEN L CASTLE REVOCABLE TRUST AND RUTH A CASTLE REVOCABLE TRUST						8.30				
02-014005-0	39	GBT ENTERPRISES LLC						39.50	39.50		39.50	39.50
02-014005-0	40	GBT ENTERPRISES LLC						40.00	40.00		40.00	40.00
02-013001-0	41	JOHN V CHRISTIANSON		1			1	34.00			34.00	0.00
02-013005-0	41	JOHN V CHRISTIANSON						6.00	6.00		6.00	0.00
02-013001-0	42	JOHN V CHRISTIANSON						34.00	34.00		34.00	0.00
02-013005-0	42	JOHN V CHRISTIANSON						6.00	6.00		6.00	0.00
02-013006-0	43	JOHN V CHRISTIANSON						34.00	34.00		34.00	0.00
02-013007-0	43	JOHN V CHRISTIANSON						6.00	6.00		6.00	0.00
02-013006-0	44	JOHN V CHRISTIANSON						40.00	40.00		40.00	0.00
74-018-2020	45	BARBARA BREY		1			1	37.00			37.00	0.00
74-018-2020	46	BARBARA BREY						14.50				
02-014002-0	47	ALLEN L CASTLE REVOCABLE TRUST AND RUTH A CASTLE REVOCABLE TRUST						0.80				
02-014005-0	48	GBT ENTERPRISES LLC						38.60	38.60		38.60	
02-014005-0	49	GBT ENTERPRISES LLC						40.00	40.00		40.00	40.00
02-013005-0	50	JOHN V CHRISTIANSON						40.00				
02-013005-0	51	JOHN V CHRISTIANSON						40.00	40.00		40.00	0.00
02-013006-0	52	JOHN V CHRISTIANSON						40.00	40.00		40.00	0.00
02-013006-0	53	JOHN V CHRISTIANSON						40.00	40.00		40.00	0.00
74-018-2020	54	BARBARA BREY						35.80			35.80	0.00
74-018-2020	55	BARBARA BREY						0.20				
02-014004-2	56	ALLEN L CASTLE REVOCABLE TRUST AND RUTH A CASTLE REVOCABLE TRUST						0.80				
02-014001-0	57	GBT ENTERPRISES LLC						39.50	39.50		39.50	39.50
02-014001-0	58	GBT ENTERPRISES LLC						40.00	40.00		40.00	40.00
02-013004-0	59	JOHN V CHRISTIANSON						40.00	40.00		40.00	0.00
02-013002-0	60	JOHN V CHRISTIANSON						40.00	40.00		40.00	0.00
02-013002-0	61	JOHN V CHRISTIANSON						39.70			39.70	0.00
02-013003-0	62	JOHN V CHRISTIANSON						35.00			35.00	0.00
74-018-3040	63	GARY & CHERYL BITKER		1			1	25.00			25.00	0.00
	64	OMITTED						0.00				
	64	OMITTED						0.00				
02-014004-2	65	ALLEN L CASTLE REVOCABLE TRUST AND RUTH A CASTLE REVOCABLE TRUST						26.40				
02-014004-1	65	VERSAEVEL FARMS INC		1				0.20				
02-014001-0	66	GBT ENTERPRISES LLC						35.00	35.00		35.00	35.00
02-014001-0	67	GBT ENTERPRISES LLC						40.00	40.00		40.00	40.00
02-013004-0	68	JOHN V CHRISTIANSON						40.00				

02-013002-0	69	JOHN V CHRISTIANSON						40.00			
02-013002-0	70	JOHN V CHRISTIANSON						24.50			
	71	OMITTED						0.00			
	72	OMITTED						0.00			
02-023008-0	73	LAWRENCE SCHMIDT	1		1			20.50	20.50	0.00	0.00
02-023008-0	74	LAWRENCE SCHMIDT						40.00	40.00	0.00	0.00
02-024002-0	75	LAWRENCE SCHMIDT						36.00	36.00	0.00	0.00
02-024002-0	76	LAWRENCE SCHMIDT						9.50			
	77	OMITTED						0.00			
	78	OMITTED						0.00			
02-023006-0	79	DARRELL DERUYCK	1					7.50			
02-023006-0	80	DARRELL DERUYCK						22.10			
02-024002-0	81	LAWRENCE SCHMIDT						36.00	36.00	0.00	0.00
02-024002-0	82	LAWRENCE SCHMIDT						8.10			
	83	OMITTED						0.00			
02-023010-0	84	DONALD E & JEAN M SCHMIDT	1					0.10			
02-024003-1	85	DENNIS & MARY DERUYCK	1					1.00			
02-024003-1	85	DENNIS DERUYCK	1					9.00			
02-024003-1	86	DENNIS & MARY DERUYCK						3.90			
			28	6	11	5	45.45%	2257.60	968.50	1602.90	771.00
							21.43%		42.90%		48.10%

Parcels, Tracts, and Owners considered "passed over" are marked in red

**SIGNATURE PAGE FOR PROPOSED IMPROVEMENT PROJECT
TO
LYON-REDWOOD COUNTY JOINT JUDICIAL DITCH NO. 15**

Printed or Typed Name of Petitioner(s): David & Stephanie Leach

Ownership (check one)

- Individual
- Business
- Partnership
- Co-owner. How many
- Trust. How many trustees
- Other.

TRACT DESCRIPTION	ACRES "PASSED" OVER	ACRES AFFECTED
Tract 11 NE ¼ of the NW ¼ Section 12-T111N-R40W PIN: 02-012002-0	0.00	40.00
Tract 18 Pt. of the SE ¼ of the NW ¼ Section 12-T111N-R40W PIN: 02-012002-0	0.00	30.00

David Leach
Signature Title

7/2/18
Date

Stephanie Leach
Signature Title

7/2/18
Date

Signature Title

Date

Signature Title

Date

**SIGNATURE PAGE FOR PROPOSED IMPROVEMENT PROJECT
TO
LYON-REDWOOD COUNTY JOINT JUDICIAL DITCH NO. 15**

Printed or Typed Name of Petitioner(s): Denny O Living Trust & LA O Living Trust

Ownership (check one)

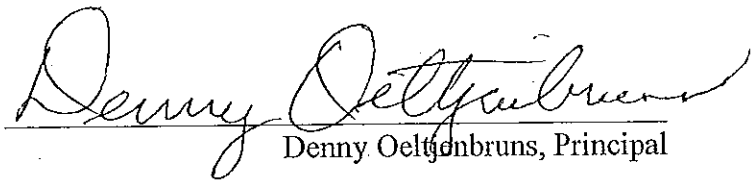
- Individual
 Business
 Partnership
 Co-owner. How many _____
 Trust. How many trustees 2
 Other. _____

TRACT DESCRIPTION	ACRES "PASSED" OVER	ACRES AFFECTED
<i>AWO</i> Tract 19 Pt. of the NW ¼ of the SW 1/4 Section 11-T111N-R40W PIN: 02-011003-0	33.00	33.00
<i>AWO</i> Tract 20 NE ¼ of the SW ¼ Section 11-T111N-R40W PIN: 02-011003-0	40.00	40.00
<i>AWO</i> Tract 27 Pt. of the SW ¼ of the SW ¼ Section 11-T111N-R40W PIN: 02-011003-0	24.00	24.00
<i>AWO</i> Tract 28 Pt. of the SE ¼ of the SW ¼ Section 11-T111N-R40W PIN: 02-011003-0	40.00	40.00

Denny O Living Trust _____ 7/2/18
 Signature Title Date

Loisjeanne Oeltgen POA _____ 9/24/18
 Signature Title Date
Denny O Living Trust

 Signature Title Date


Denny Oeltjenbruns, Principal

STATE OF MINNESOTA

)

) ss.

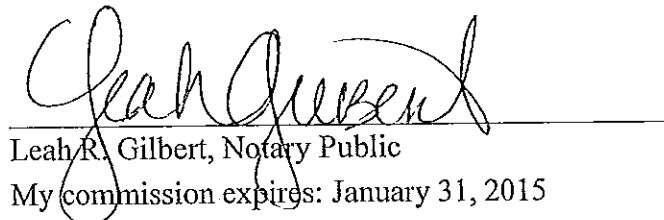
COUNTY OF LYON

)

On this day, August 26, 2013, before me personally appeared Denny Oeltjenbruns, as Principal, personally known to me (or proved to me on the basis of satisfactory evidence) to be the individual whose name is subscribed to the foregoing Durable Power of Attorney, and acknowledged that he executed the same as his voluntary act and deed for the purposes therein contained.

Witness my hand and official seal.

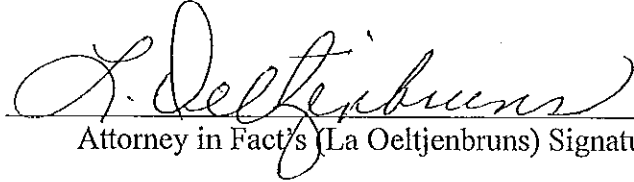
[Seal]


Leah R. Gilbert, Notary Public
My commission expires: January 31, 2015



ACCEPTANCE BY ATTORNEY IN FACT:

The undersigned Attorney in Fact hereby accepts the delegation of authority set out in this power of attorney.



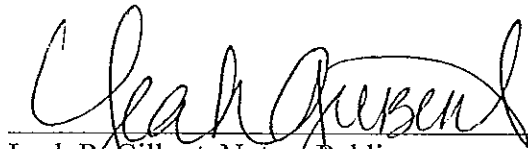
Attorney in Fact's (La Oeltjenbruns) Signature

STATE OF MINNESOTA)
) ss.
COUNTY OF LYON)

On this day, August 26, 2013, before me personally appeared La Oeltjenbruns, as Attorney in Fact, personally known to me (or proved to me on the basis of satisfactory evidence) to be the individual whose name is subscribed to the foregoing Durable Power of Attorney, and acknowledged that she executed the same as her voluntary act and deed for the purposes therein contained.

Witness my hand and official seal.

[Seal]



Leah R. Gilbert, Notary Public
My commission expires: January 31, 2015



**SIGNATURE PAGE FOR PROPOSED IMPROVEMENT PROJECT
TO
LYON-REDWOOD COUNTY JOINT JUDICIAL DITCH NO. 15**

Printed or Typed Name of Petitioner(s): GBT Enterprises, LLC

Ownership (check one)

- Individual
 Business
 Partnership
 Co-owner. How many _____
 Trust. How many trustees _____
 Other. LLC

TRACT DESCRIPTION	ACRES "PASSED" OVER	ACRES AFFECTED
Tract 22 NE ¼ of the SE ¼ Section 11-T111N-R40W PIN: 02-011002-0	40.00	40.00
Tract 30 SE ¼ of the SE ¼ Section 11-T111N-R40W PIN: 02-011002-0	40.00	40.00
Tract 39 Pt. of the NW ¼ of the NE ¼ Section 14-T111N-R40W PIN: 02-014005-0	39.50	39.50
Tract 40 NE ¼ of the NE ¼ Section 14-T111N-R40W PIN: 02-014005-0	40.00	40.00
Tract 48 Pt. of the SW ¼ of the NE ¼ Section 14-T111N-R40W PIN: 02-014005-0	0.00	38.60
Tract 49 SE ¼ of the NE ¼ Section 14-T111N-R40W PIN: 02-014005-0	40.00	40.00

Tract 57 Pt. of the NW ¼ of the SE ¼ Section 14-T111N-R40W PIN: 02-014001-0	39.50	39.50
Tract 58 NE ¼ of the SE ¼ Section 14-T111N-R40W PIN: 02-014001-0	40.00	40.00
Tract 66 Pt. of the SW ¼ of the SE ¼ Section 14-T111N-R40W PIN: 02-014001-0	35.00	35.00
Tract 67 SE ¼ of the SE ¼ Section 14-T111N-R40W PIN: 02-014001-0	40.00	40.00

Signature Gale Torstenson Title manager Date 7-17-18

Signature Barbara Torstenson Title Manager Date 7-17-18

Signature _____ Title _____ Date _____

Signature _____ Title _____ Date _____

G B T ENTERPRISES, L L C

A Wyoming Limited Liability Company

Minutes of the Meeting on 9 – 27 – 2018

The following Members and Managers were in attendance at the meeting and constituted a quorum of all the Managers:

Gale L. Torstenson, Manager

2756 210th St.

Dawson, MN 56232

David Torstenson, Manager

2175 281st Avenue

Madison, MN 56265

Barbara A. Torstenson, Manager

2756 210th St.

Dawson, MN 56232

Anne Duncan, Manager

1710 Maple Avenue

Benson, MN 56215

A Meeting was held on the above date of the Managers of GBT Enterprises, LLC, in order to approve a resolution for the Lyon/Redwood Counties Judicial Ditch # 15 of the State of Minnesota. Be it resolved that any of the Managers of said Company may act independently for G B T Enterprises, LLC, with Lyon and/or Redwood Counties in the State of Minnesota.

MANAGERS:

Gale L. Torstenson, Manager

Gale L. Torstenson

Barbara A. Torstenson, Manager

Barbara A. Torstenson

David Torstenson, Manager

David Torstenson

Anne Duncan, Manager

Anne Duncan

GBT ENTERPRISES, LLC
A Wyoming Limited Liability Company

MINUTES OF FIRST MEETING

The first meeting of the Members of the above-captioned Limited Liability Company, hereinafter referred to as "Company", was held at the time, date and place set forth in the written Waiver of Notice signed by all of the Members, fixing such time and place, and prefixed to the minutes of this meeting.

The following Members and Managers were in attendance at the meeting and constituted a quorum of all the Managers:

Gale L. Torstenson, Manager
2756 - 210th St.
Dawson, MN 56232

David Torstenson, Manager
2175 - 281st Ave.
Madison, MN 56256

Barbara A. Torstenson, Manager
2756 - 210th St.
Dawson, MN 56232

Anne Duncan, Manager
1710 Maple Ave.
Benson, MN 56215

Members:

Gale L. Torstenson and Barbara A. Torstenson, co-Trustees of the Revocable Trust Agreement of Gale L. Torstenson dated September 13, 2007

Barbara A. Torstenson and Gale L. Torstenson, co-Trustees of the Revocable Trust Agreement of Barbara A. Torstenson dated September 13, 2007

The Managers announced that the meeting was held pursuant to written waiver of notice and consent to holding of the meeting signed by each of the Members and Managers. Upon motions duly made, seconded and unanimously carried, it was resolved that the waiver of notice and consent to holding of the meeting be made a part of the minutes of the meeting and placed in the Company minute book.

The Managers then announced that the Articles of Organization of the Company are to be filed with the Wyoming Secretary of State's office.

A proposed Operating Agreement of the Company was then presented to the meeting for adoption. The Operating Agreement was considered and discussed and upon motion duly made and seconded, it was unanimously resolved, that the Operating Agreement be and hereby is adopted as the Operating Agreement of this Company. A copy of the Operating Agreement shall be kept in the Company minute book.

The form of unit certificate was presented for the consideration of the Manager and upon motion duly made and seconded, it was unanimously adopted.

The Managers next took up the matter of the sale and issuance of certificates of ownership to provide capital for the Company. Upon motion duly made and seconded, it was unanimously resolved, that the Company sell and issue the following number of its authorized certificates to the following persons, in the amounts and for the consideration set forth under their names below:

Revocable Trust Agreement of Gale L. Torstenson dated September 13, 2007
-Gale L. Torstenson, co-Trustee
- Barbara A. Torstenson, co-Trustee
Certificate Number: One (1)
Membership Interests:

Revocable Trust Agreement of Barbara A. Torstenson dated September 13, 2007
-Barbara A. Torstenson, co-Trustee
- Gale L. Torstenson, co-Trustee
Certificate Number: Two (2)
Membership Interests:

The Managers then recommended that the Company open a bank account with any bank of the Managers' choosing, hereinafter referred to as "Bank." Upon motion duly made and seconded, it was resolved, that the funds of this Company shall be deposited with the Bank indicated above. Resolved further that funds of this Company deposited in said Bank be subject to withdrawal upon checks, notes, drafts, bills of exchange, acceptances, undertakings of other orders for the payment of money when signed on behalf of this Company by either of the following Managers:

Gale L. Torstenson, Manager
2756 - 210th St.
Dawson, MN 56232

David Torstenson, Manager
2175 - 281st Ave.
Madison, MN 56256

Barbara A. Torstenson, Manager
2756 - 210th St.
Dawson, MN 56232

Anne Duncan, Manager
1710 Maple Ave.
Benson, MN 56215

Resolved further, that either of the above-named Managers is authorized to borrow from time to time on behalf of the Company from the above Bank, sums of money for such periods of time, and upon such terms, rates of interest and amounts as may in their discretion seem advisable, and to execute notes or agreements in the forms required by said Bank.

Resolved further, that the above-named Managers is hereby authorized to pledge or mortgage any of the bonds, or other securities, bills receivable, warehouse receipts or other property, real or personal, of the company for the purpose of securing the payment of any monies so borrowed, to endorse said securities and/or to issue the necessary powers of attorney and to execute loan,

pledge or liability agreements in the forms required by the said Bank in connection with the same.

Resolved further, that either of the above-named Managers is hereby authorized to discount with the Bank any bills receivable held by this Company upon such terms as they may deem proper.

Resolved further, that the foregoing powers and authority will continue until written notice of revocation has been delivered to the above Bank.

Resolved further, that the above named Managers is hereby are authorized to certify to the Bank the foregoing resolutions, and that the provisions thereof are in conformity with the charter and Operating Agreement of this Company.

There being no further business to come before the meeting, upon motion duly made, seconded and unanimously carried, it was adjourned.

Dated the 7 day of June, 2013.

MANAGERS:

Gale L. Torstenson, Manager
Gale L. Torstenson

Barbara A. Torstenson, Manager
Barbara A. Torstenson

David Torstenson, Manager
David Torstenson

Anne Duncan, Manager
Anne Duncan

MEMBERS:

Revocable Trust Agreement of Gale L. Torstenson dated September 13, 2007
Gale L. Torstenson
By Gale L. Torstenson, co-Trustee

Barbara A. Torstenson
By Barbara A. Torstenson, co-Trustee

GBT ENTERPRISES, LLC

A Wyoming Limited Liability Company

Minutes of the Meeting on 2-14-2014

The following Members and Managers were in attendance at the meeting and constituted a quorum of all the Managers:

Gale L. Torstenson, Manager

2756 210th St.

Dawson, MN 56232

Barbara A. Torstenson, Manager

2756 210th St.

Dawson, MN 56232

David Torstenson, Manager

2175 281st Avenue

Madison, MN 56256

Anne Duncan, Manager

1710 Maple Avenue

Benson, MN 56215

A Meeting was held on the above date of the Managers of GBT Enterprises, LLC, in order to approve a resolution for the Farm Service Agency and the NRCS Agency of the United States of America. Be it resolved that any of the Managers of said Company may act independently for GBT Enterprises, LLC, with the Farm Service Agency or the NRCS Agency.

MANAGERS;

Gale L. Torstenson, Manager

Gale L. Torstenson

Barbara A. Torstenson, Manager

Barbara A. Torstenson

David Torstenson, Manager

David Torstenson

Anne Duncan, Manager

Anne Duncan

Barb and Gale Torstenson

From: Jennifer Gilk <jenniferg@rwflaw.com>
Sent: Wednesday, April 02, 2014 10:20 AM
To: Neil Sullivan
Cc: Barb and Gale Torstenson
Subject: draft appraisal -- numbers final (GBT)
Attachments: DRAFT Ironhorse Appraisal.PDF

Neil,

Here is the DRAFT appraisal. Gale and Barb have approved it, and Ironhorse is 2 day mailing me the final version. I should have it by early next week.

Bob at Ironhorse said the numbers in the draft copy are final, so you can use them to do the income tax returns.

I believe the appraisal says:

David's trust = 18.25095 membership units (9.125475 units from Barb and 9.125475 units from Gale)

Anne's trust = 18.25095 membership units (9.125475 units from Barb and 9.125475 units from Gale)

Barb's RLT (Barb) = 31.74905 membership units

Gale's RLT (Gale) = 31.74905 membership units

> Gale + Barbara have controlling units

The reference to David's and Anne's calculations are found on page 4 of the report.

Let me know if you need anything else.

Jennifer L.J. Gilk
Attorney at Law
Estebo, Frank, Gilk & Munshower, LTD
315 S. Washington St.
PO Box 377
Redwood Falls, MN 56283
TEL: 507-637-5721
FAX: 507-637-5233
jgilk@rwflaw.com

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507.637.5721 and delete this message and any attachments. Thank you.

Circular 230 Disclosure: Pursuant to recently-enacted U.S. Treasury Department Regulations, any federal tax advice contained in this communication is not intended and may not be used, for the purpose of (i) avoiding tax-related penalties under the Internal Revenue Code or (ii) promoting, marketing or recommending to another party any tax-related matters addressed herein.

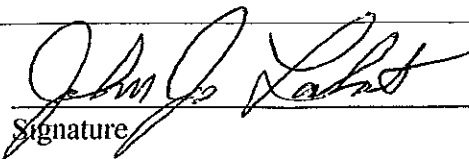
**SIGNATURE PAGE FOR PROPOSED IMPROVEMENT PROJECT
TO
LYON-REDWOOD COUNTY JOINT JUDICIAL DITCH NO. 15**

Printed or Typed Name of Petitioner(s): John & Lynette Labat

Ownership (check one)

- Individual
- Business
- Partnership
- Co-owner. How many
- Trust. How many trustees
- Other.

TRACT DESCRIPTION	ACRES "PASSED" OVER	ACRES AFFECTED
Tract 23 Pt. of the NW ¼ of the SW ¼ Section 12-T111N- R40W PIN: 02-012004-1	10.40	10.40
Tract 23 Pt. of the NW ¼ of the SW 1/4 Section 12-T111N- R40W PIN: 02-012004-0	29.60	29.60
Tract 24 Pt. of the NE ¼ of the SW ¼ Section 12-T111N- R40W PIN: 02-012004-0	0.00	36.30
Tract 31 SW ¼ of the SW ¼ Section 12-T111N- R40W PIN: 02-012004-0	40.00	40.00
Tract 32 SE ¼ of the SW ¼ Section 12-T111N- R40W PIN: 02-012004-0	40.00	40.00


Signature Title

7-2-18
Date


Signature Title

7-2-18
Date

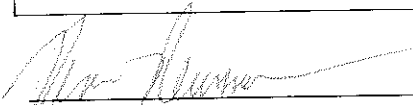
**SIGNATURE PAGE FOR PROPOSED IMPROVEMENT PROJECT
TO
LYON-REDWOOD COUNTY JOINT JUDICIAL DITCH NO. 15**

Printed or Typed Name of Petitioner(s): Jo Neuman Family, LLLP and
K&J Baab Neuman Family, LLLP

Ownership (check one)

- Individual
- Business
- Partnership
- Co-owner. How many _____
- Trust. How many trustees _____
- Other. _____

TRACT DESCRIPTION	ACRES "PASSED" OVER	ACRES AFFECTED
Pt. of the SW ¼ of the SW ¼ Section 7-T111N- R39W PIN: 74-007-3040	0.00	30.00
Pt. of the SE ¼ of the SW ¼ Section 7-T111N- R39W PIN: 74-007-3040	0.00	20.00

 General Partner 10-1-18
Signature Title Date

Jo Neuman General Partner 10-1-18
Signature Title Date

Signature Title Date

Signature Title Date

**SIGNATURE PAGE FOR PROPOSED IMPROVEMENT PROJECT
TO
LYON-REDWOOD COUNTY JOINT JUDICIAL DITCH NO. 15**

Printed or Typed Name of Petitioner(s): Lois M. & Richard Coudron

Ownership (check one)

- Individual
 Business
 Partnership
 Co-owner. How many _____
 Trust. How many trustees _____
 Other. _____

TRACT DESCRIPTION	ACRES "PASSED" OVER	ACRES AFFECTED
Tract 9 NE ¼ of the NE ¼ Section 11-T111N-R40W PIN: 02-011001-0	40.00	40.00
Tract 16 SE ¼ of the NE ¼ Section 11-T111N-R40W PIN: 02-011001-0	40.00	40.00
Tract 12 Pt. of the NW quarter corner of the NW ¼ of the NE ¼ Section 12-T111N-R40W PIN: 02-012001-2	0.00	5.00
Tract 25 Pt. of the NW ¼ of the SE ¼ Section 12-T111N-R40W PIN: 02-012002-3	0.00	3.60
Tract 26 Pt. of the SW quarter-corner of the NE ¼ of the SE ¼ Section 12-T111N-R40W PIN: 02-012002-3	0.00	3.00
Tract 33 SW ¼ of the SE ¼ Section 12-T111N-R40W PIN: 02-012002-3	0.00	32.50

RC

RC

RC

RC

RC

RC

Tract 34 Pt. of the SE ¼ of the SE ¼ Section 12-T111N-R40W PIN: 02-012002-3	0.00	8.50
--	------	------

RC

Richard Cowden
 Signature _____ Title _____

7/3/18
 Date _____

Luis Cowden
 Signature _____ Title _____

7/3/18
 Date _____

**SIGNATURE PAGE FOR PROPOSED IMPROVEMENT PROJECT
TO
LYON-REDWOOD COUNTY JOINT JUDICIAL DITCH NO. 15**

Printed or Typed Name of Petitioner(s): Lois M. & Richard

Coudron

Ownership (check one)

- Individual
- Business
- Partnership
- Co-owner. How many ___
- Trust. How many trustees ___
- Other.

TRACT DESCRIPTION	ACRES "PASSED" OVER	ACRES AFFECTED
TRACT 9 NE ¼ of the NE ¼ Section 11-T111N-R40W PIN: 02-011001-0	40.00	40.00
TRACT 16 SE ¼ of the NE ¼ Section 11-T111N-R40W PIN: 02-011001-0	40.00	40.00
TRACT 12 Pt. of the NW quarter corner of the NW ¼ of the NE ¼ Section 12-T111N-R40W PIN: 02-012001-2	0.00	5.00
TRACT 25 Pt. of the NW ¼ of the SE ¼ Section 12-T111N-R40W PIN: 02-012003-3	0.00	3.60
TRACT 26 Pt. of the SW quarter-corner of the NE ¼ of the SE ¼ Section 12-T111N-R40W PIN: 02-012002-3	0.00	3.00
TRACT 33 SW ¼ of the SE ¼ Section 12-T111N-R40W PIN: 02-012002-3	0.00	32.50

RC

RC

R.C.

R.C.

R.C.

R.C.

TRACT 34 Pt. of the SE ¼ of the SE ¼ Section 12-T111N-R40W PIN: 02-012002-3	0.00	8.50
--	------	------

R.C.

Signature

Richard Cordum

Title

Date

7-3-18

Signature

Luis Cordum

Title

Date

7-3-18

Exhibit 3: Cost Estimate

Exhibit 4: Separable Maintenance

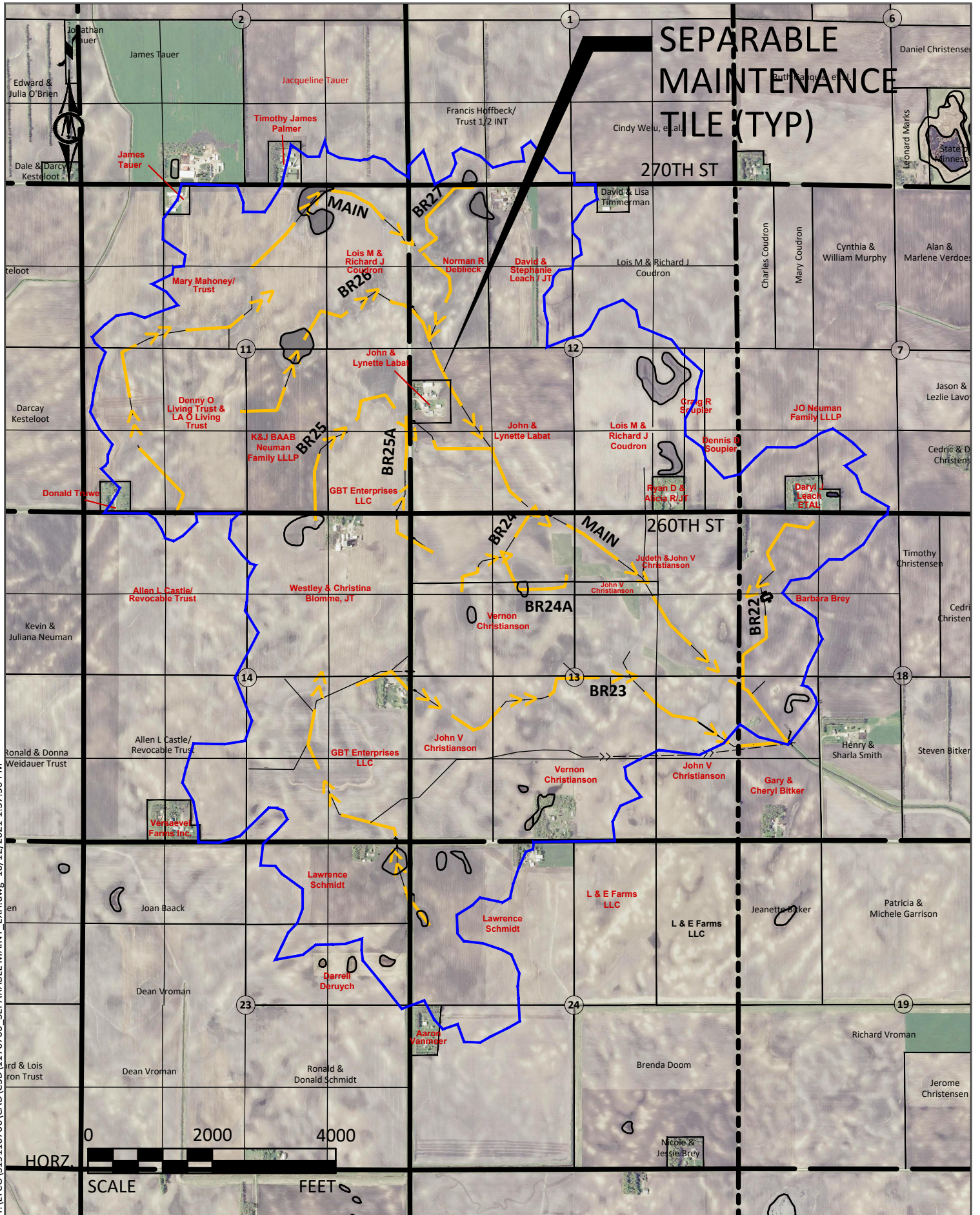
SEPARABLE MAINTENANCE

JUDICIAL DITCH 15
 LYON COUNTY, MN
 BMI PROJECT NO. S15.116766



Date: 10/18/2021

Item No.	Item	Estimated Quantity	Unit	Unit Price	Total Amount	MAIN TILE		BRANCH 22		BRANCH 23		BRANCH 24		BRANCH 24A		BRANCH 25		BRANCH 25A		BRANCH 26		BRANCH 27	
						Qty.	Price	Qty.	Price	Qty.	Price	Qty.	Price	Qty.	Price	Qty.	Price	Qty.	Price	Qty.	Price	Qty.	Price
BASE BID																							
1	Mobilization	1	Lump Sum	\$75,000.00	\$75,000.00	0.37	\$27,750.00	0.04	\$3,000.00	0.23	\$17,250.00	0.05	\$3,750.00	0.03	\$2,250.00	0.14	\$10,500.00	0.04	\$3,000.00	0.08	\$6,000.00	0.02	\$1,500.00
2	Aggregate Surfacing, Class 5	140	Ton	\$30.00	\$4,200.00	65	\$1,950.00	0	\$0.00	0	\$0.00	25	\$750.00	0	\$0.00	25	\$750.00	25	\$750.00	0	\$0.00	0	\$0.00
3	Open Ditch Excavation	50	Cubic Yard	\$4.00	\$200.00	50	\$200.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
4	Exploratory Excavation	180	Hours	\$225.00	\$40,500.00	55	\$12,375.00	10	\$2,250.00	35	\$7,875.00	5	\$1,125.00	5	\$1,125.00	30	\$6,750.00	20	\$4,500.00	15	\$3,375.00	5	\$1,125.00
5	Drain Tile Connection	180	Each	\$500.00	\$90,000.00	55	\$27,500.00	10	\$5,000.00	35	\$17,500.00	5	\$2,500.00	5	\$2,500.00	30	\$15,000.00	20	\$10,000.00	15	\$7,500.00	5	\$2,500.00
6	12" Intakes	45	Each	\$1,500.00	\$67,500.00	17	\$25,500.00	0	\$0.00	15	\$22,500.00	0	\$0.00	0	\$0.00	5	\$7,500.00	0	\$0.00	5	\$7,500.00	3	\$4,500.00
7	8" Intakes	47	Each	\$1,000.00	\$47,000.00	12	\$12,000.00	7	\$7,000.00	6	\$6,000.00	3	\$3,000.00	2	\$2,000.00	10	\$10,000.00	5	\$5,000.00	2	\$2,000.00	0	\$0.00
8	6" Tile	900	Linear Foot	\$18.00	\$16,200.00	200	\$3,600.00	50	\$900.00	200	\$3,600.00	50	\$900.00	50	\$900.00	150	\$2,700.00	50	\$900.00	100	\$1,800.00	50	\$900.00
9	8" Tile	21245	Linear Foot	\$20.00	\$424,900.00	4900	\$98,000.00	50	\$1,000.00	2780	\$55,600.00	1910	\$38,200.00	1550	\$31,000.00	1040	\$20,800.00	2560	\$51,200.00	4700	\$94,000.00	1755	\$35,100.00
10	10" Tile	4150	Linear Foot	\$21.00	\$87,150.00	1120	\$23,520.00	0	\$0.00	1250	\$26,250.00	0	\$0.00	0	\$0.00	1780	\$37,380.00	0	\$0.00	0	\$0.00	0	\$0.00
11	12" Tile	3770	Linear Foot	\$22.00	\$82,940.00	1850	\$40,700.00	1370	\$30,140.00	550	\$12,100.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
12	15" Tile	8810	Linear Foot	\$25.00	\$220,250.00	3550	\$88,750.00	0	\$0.00	5260	\$131,500.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
13	18" Tile	11270	Linear Foot	\$30.00	\$338,100.00	3220	\$96,600.00	2200	\$66,000.00	3960	\$118,800.00	0	\$0.00	0	\$0.00	1890	\$56,700.00	0	\$0.00	0	\$0.00	0	\$0.00
14	24" Tile	4230	Linear Foot	\$38.00	\$160,740.00	4230	\$160,740.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
15	30" Tile	1480	Linear Foot	\$60.00	\$88,800.00	1480	\$88,800.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
16	24" CMP	20	Linear Foot	\$80.00	\$1,600.00	0	\$0.00	0	\$0.00	20	\$1,600.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
17	36" CMP	20	Linear Foot	\$110.00	\$2,200.00	20	\$2,200.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
18	8" Tile - Trenchless	425	Linear Foot	\$90.00	\$38,250.00	0	\$0.00	0	\$0.00	225	\$20,250.00	0	\$0.00	0	\$0.00	100	\$9,000.00	0	\$0.00	100	\$9,000.00	0	\$0.00
19	15" Tile - Trenchless	100	Linear Foot	\$160.00	\$16,000.00	0	\$0.00	0	\$0.00	100	\$16,000.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
20	18" Tile - Trenchless	200	Linear Foot	\$165.00	\$33,000.00	100	\$16,500.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	100	\$16,500.00	0	\$0.00	0	\$0.00	0	\$0.00
21	Riprap, Class 3	65	Cubic Yard	\$110.00	\$7,150.00	65	\$7,150.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00	0	\$0.00
22	Inlet Protection	90	Each	\$100.00	\$9,000.00	30	\$3,000.00	7	\$700.00	21	\$2,100.00	3	\$300.00	2	\$200.00	9	\$900.00	8	\$800.00	7	\$700.00	3	\$300.00
23	Mulch Material Type 1	206	Ton	\$150.00	\$30,900.00	76	\$11,400.00	14	\$2,100.00	50	\$7,500.00	8	\$1,200.00	6	\$900.00	18	\$2,700.00	10	\$1,500.00	18	\$2,700.00	6	\$900.00
24	Rapid Stabilization Method 4	5500	Square Yard	\$3.00	\$16,500.00	2100	\$6,300.00	0	\$0.00	1100	\$3,300.00	400	\$1,200.00	0	\$0.00	750	\$2,250.00	750	\$2,250.00	400	\$1,200.00	0	\$0.00
ESTIMATED CONSTRUCTION SUBTOTAL:					\$1,898,080.00		\$754,535.00		\$118,090.00		\$469,725.00		\$52,925.00		\$40,875.00		\$199,430.00		\$79,900.00		\$135,775.00		\$46,825.00
5% CONTINGENCY:					\$94,900.00		\$37,730.00		\$5,900.00		\$23,490.00		\$2,650.00		\$2,040.00		\$9,970.00		\$4,000.00		\$6,790.00		\$2,340.00
TEMPORARY CROP DAMAGES:					94.45 Acres \$600.00 \$56,670.00	36.55	\$21,930.00	6.56	\$3,936.00	23.55	\$14,130.00	3.92	\$2,352.00	2.86	\$1,716.00	8.47	\$5,082.00	8.47	\$5,082.00	4.28	\$2,568.00	8.26	\$4,956.00
TOTAL ESTIMATED CONSTRUCTION COST:					\$2,049,650.00		\$814,195.00		\$127,926.00		\$507,345.00		\$57,927.00		\$44,631.00		\$214,482.00		\$88,982.00		\$145,133.00		\$54,121.00
DESIGN, ADMINISTRATION AND CONSTRUCTION ENGINEERING:					\$409,930.00		\$162,840.00		\$25,590.00		\$101,470.00		\$11,590.00		\$8,930.00		\$42,900.00		\$17,800.00		\$29,030.00		\$10,820.00
TOTAL ESTIMATED PROJECT COST:					\$2,459,580.00		\$977,035.00		\$153,516.00		\$608,815.00		\$69,517.00		\$53,561.00		\$257,382.00		\$106,782.00		\$174,163.00		\$64,941.00



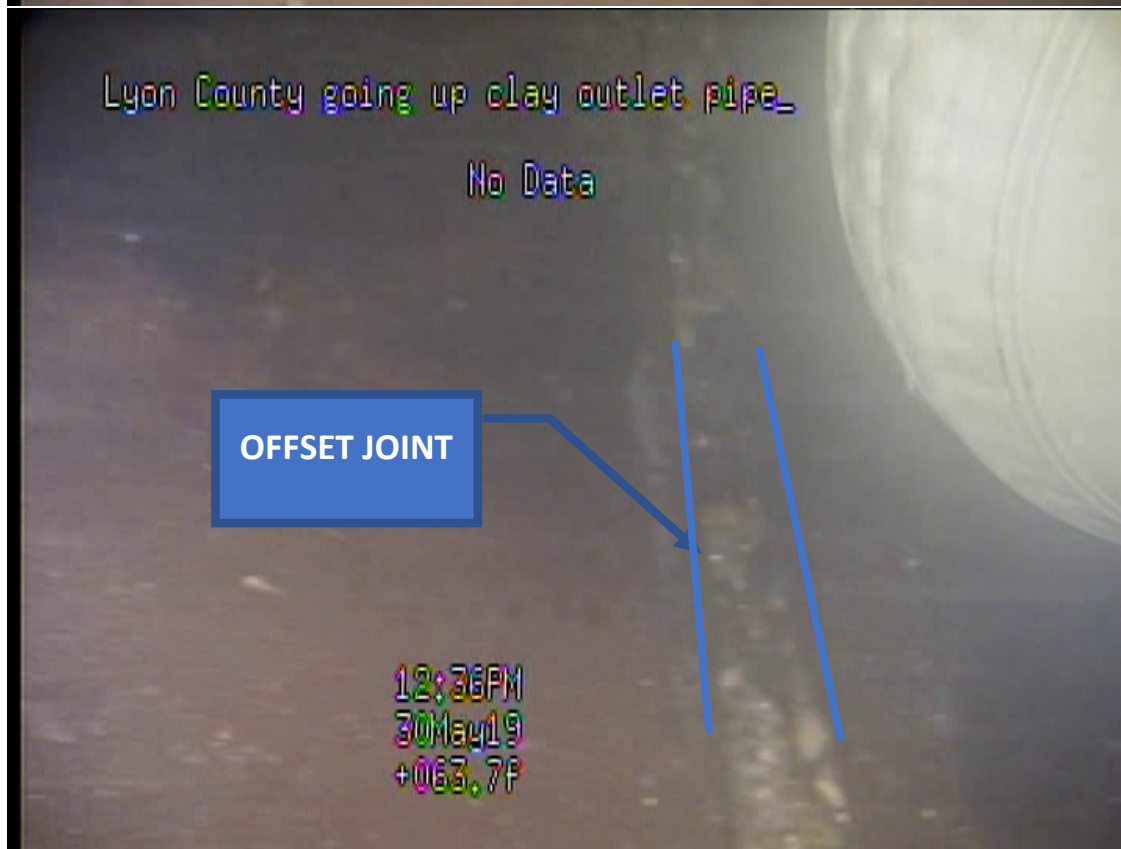
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Exhibit 5: Photos from Tile Televising

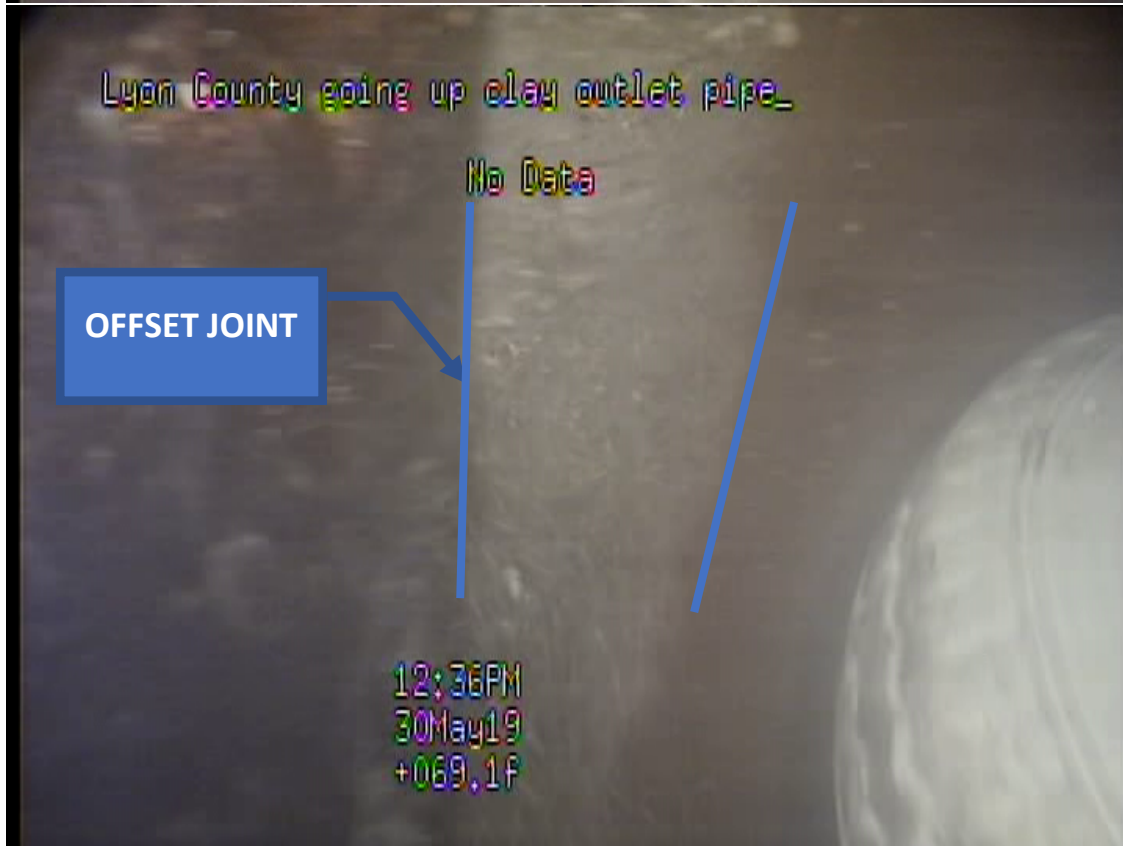
JD 15 Main Tile



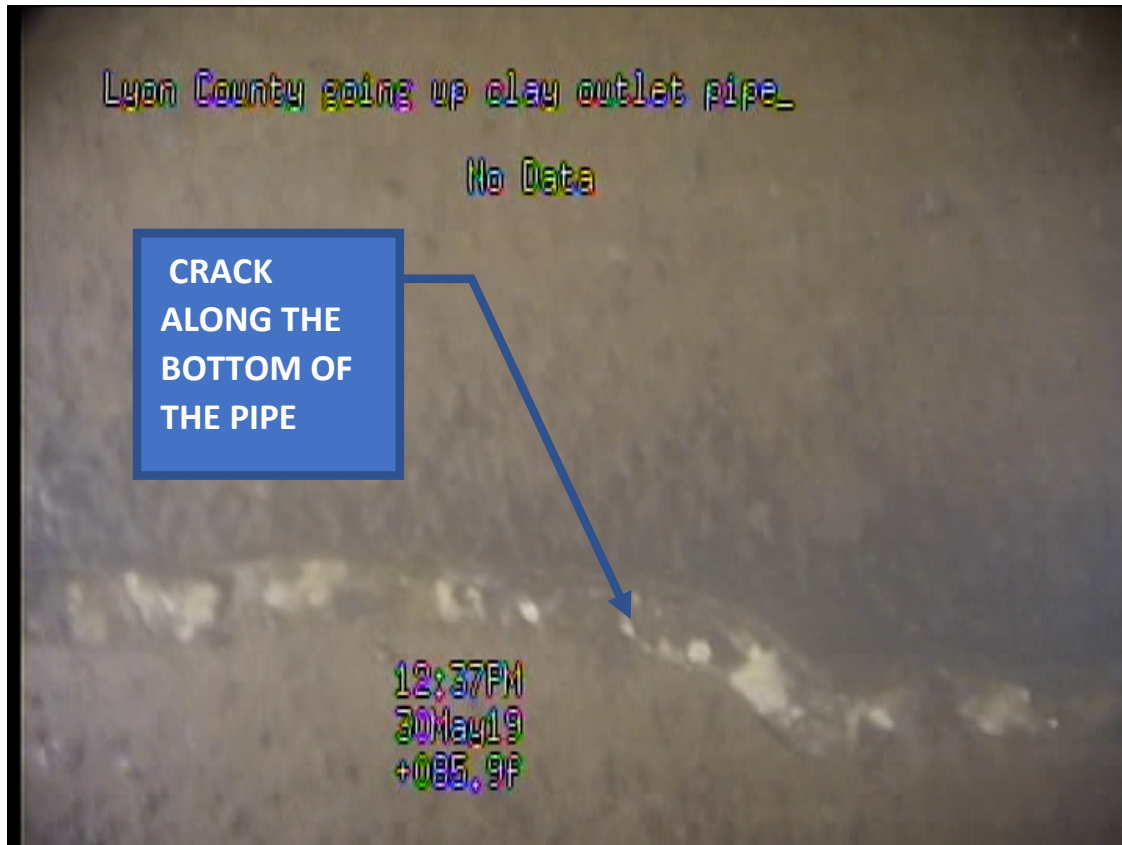
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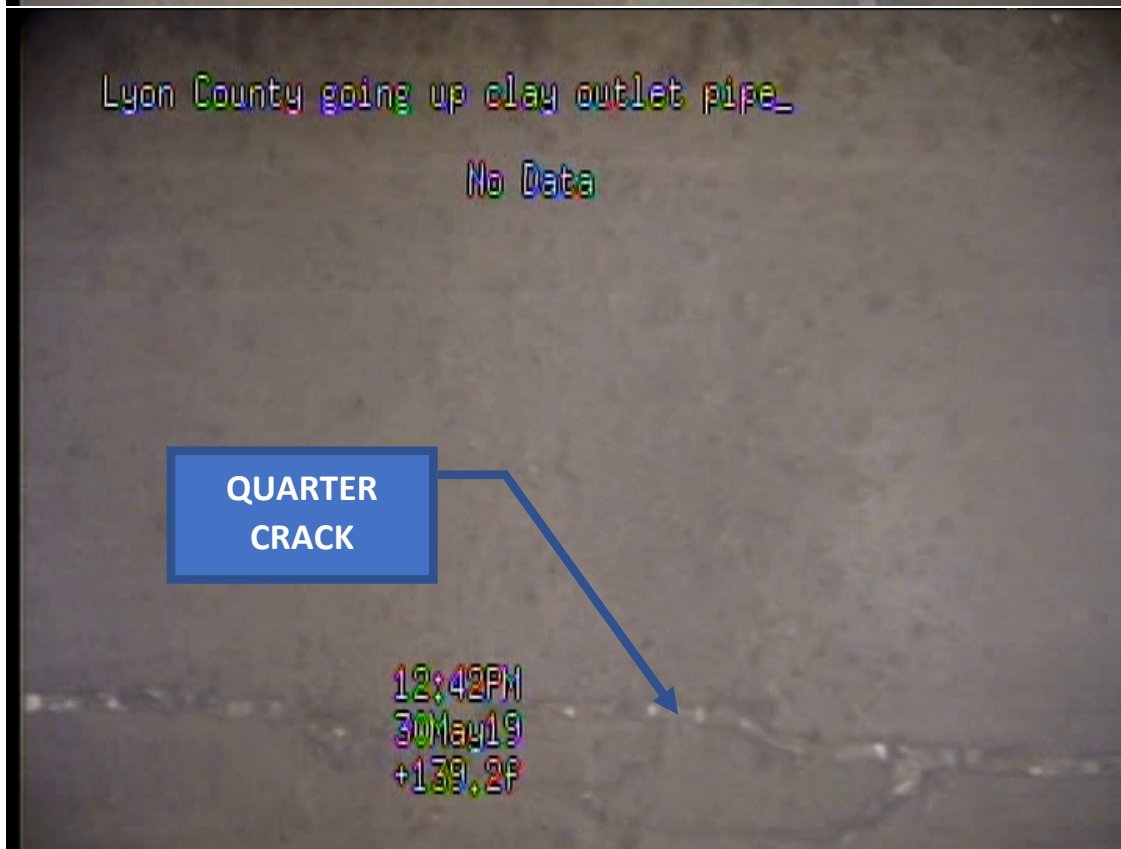
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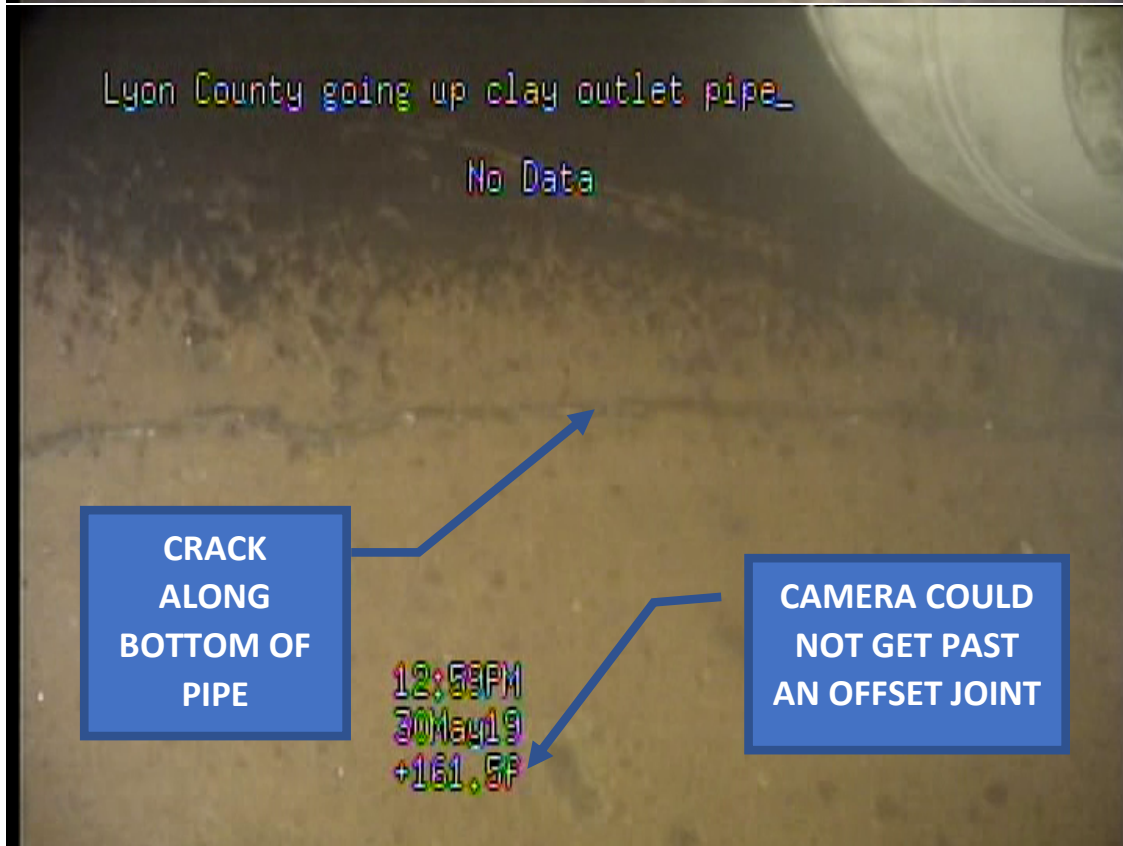
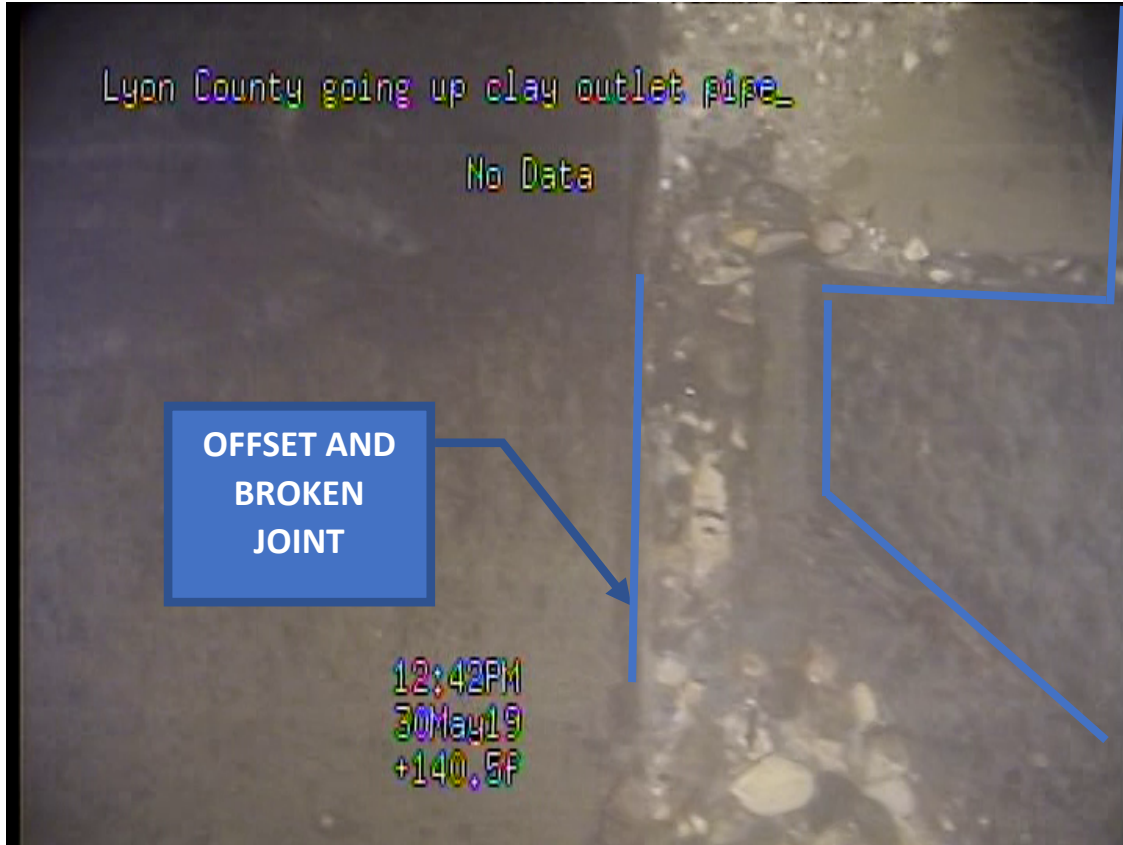
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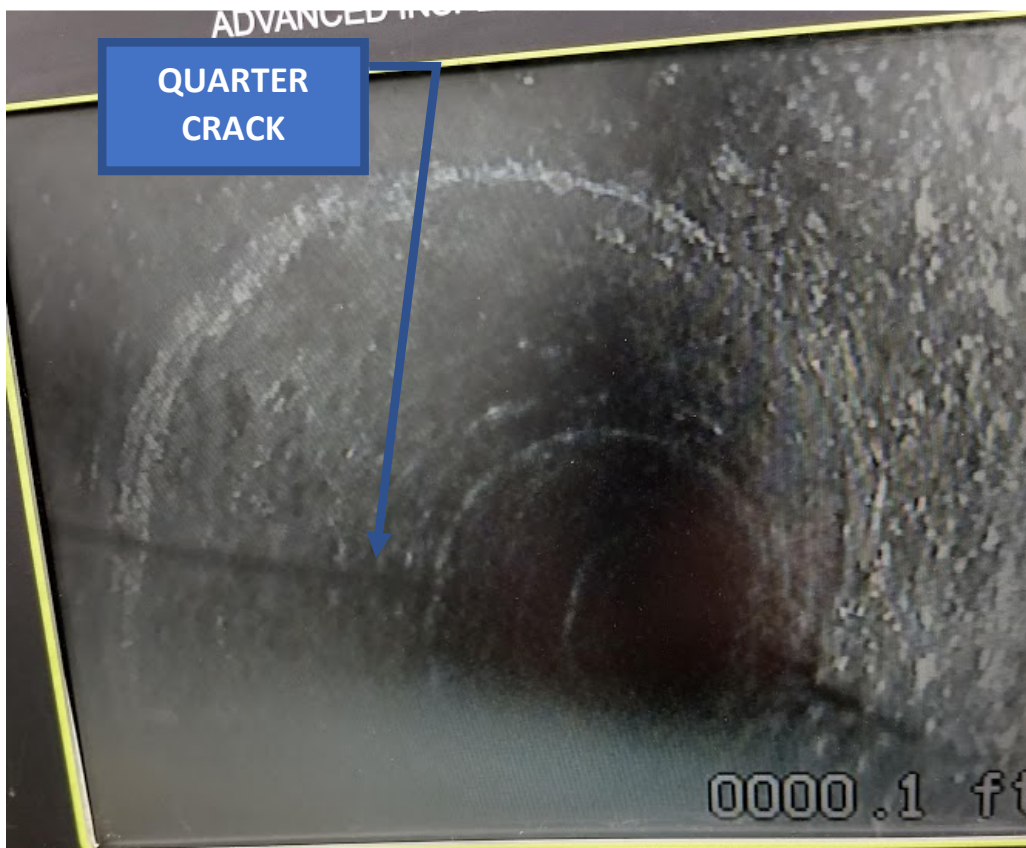
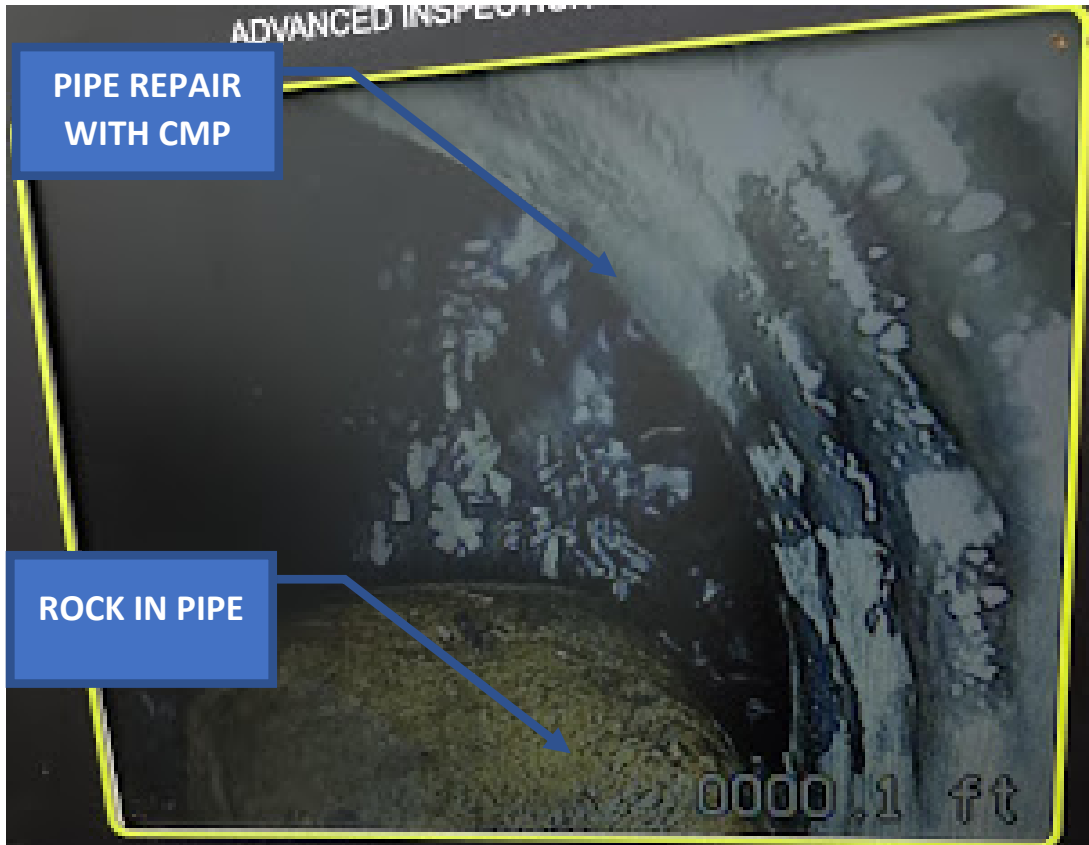
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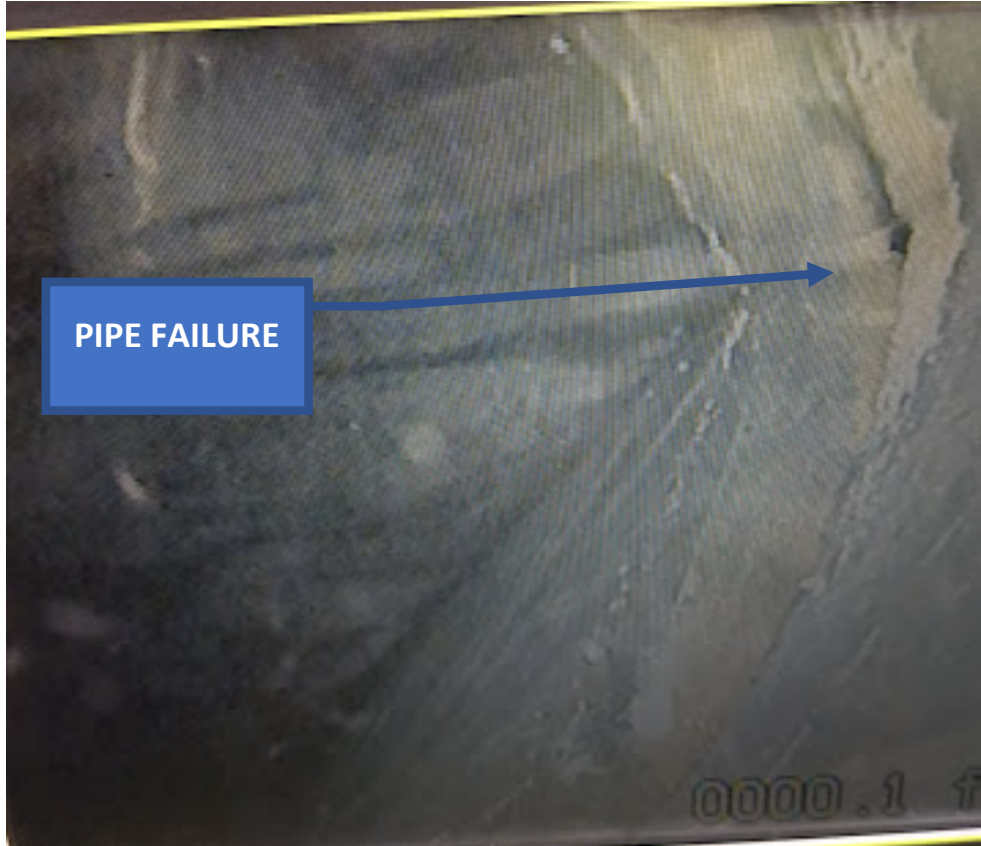
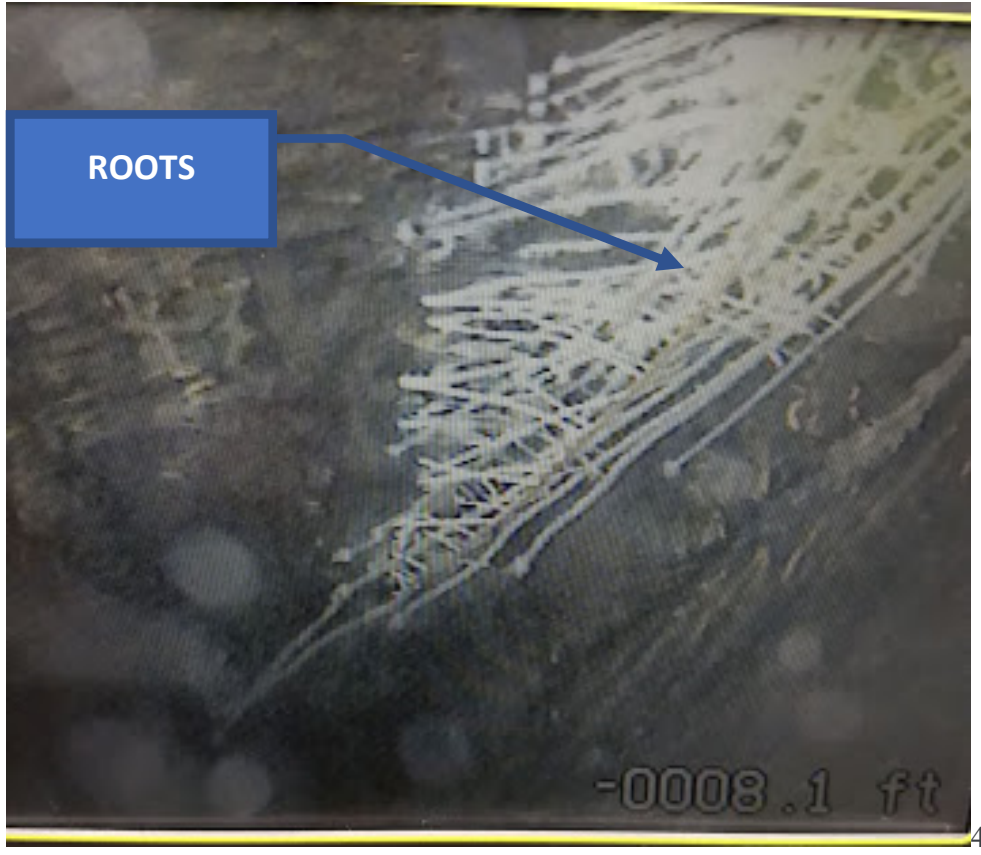
JD 15 Main Tile



JD 15 Televising



JD 15 Televising



JD 15 Televising



JD 15 Televising



Exhibit 6: Technical Specifications

TECHNICAL SPECIFICATIONS
IMPROVEMENT OF JUDICIAL DITCH NO. 15
LYON COUNTY, MN

02210 - SUBSURFACE INVESTIGATION
02220 - REMOVING PIPE AND MISCELLANEOUS STRUCTURES
02240 - DEWATERING
02320 - TRENCH EXCAVATION, BEDDING AND BACKFILL
02370 - EROSION CONTROL
02625 - AGRICULTURAL DRAIN TILE
02630 - SURFACE WATER INTAKES
02920 - TURF RESTORATION

SECTION 02210 - SUBSURFACE INVESTIGATION

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to conducting subsurface investigation as shown on the drawings, as specified herein, and/or as specified by the Engineer.

1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:

- 1. No exception to the referenced specification is made.

1.3 SPECIFICATION REFERENCES

- A. Mn/DOT Specification Section 2123 shall apply, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

PART 2 -- PRODUCTS

2.1 MATERIALS

- A. No exception to the referenced specification is made.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall:
 - 1. Perform underground utility exploration as directed by the Engineer which involves excavation to locate pipelines for location and elevation verification.
 - 2. Other work associated with the Project, as directed by the Engineer.
 - 3. Subsurface investigation shall consist of a rubber-tired backhoe, operator and laborer to find the tile.
- B. Where exploratory excavation is performed in a location that will not be disturbed later, the backfill shall be placed and compacted to the density specified elsewhere in these Specifications for the type of utility located.

****END OF SECTION****

SECTION 02220 - REMOVING PIPE AND MISCELLANEOUS STRUCTURES

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the removal of pipe and miscellaneous structures as indicated on the drawings or as specified herein.

1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
 - 1. The UNIT PRICE bid for removing miscellaneous structures shall include all costs of labor, materials, equipment and ultimate disposal required to complete the work, as specified.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the associated removal and excavation items. Such items of work include but are not limited to:
 - 1. Off-site disposal of debris.
 - 2. Fees and permits for the disposal of materials.
 - 3. Removal and disposal of existing tiles which conflict with the construction
 - 4. Bulkheading the ends of existing pipes designated by the Engineer to be abandoned in place.
 - 5. Salvage and reinstall fence (as needed)
 - 6. Protection from damage of structures or other surface improvements that are not to be removed, and subsequent repair and/or replacement if damaged by Contractor operations.

1.3 SPECIFICATIONS REFERENCES

- A. Mn/DOT Specification Section 2104 shall apply to the removal of pipe and miscellaneous structures, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.4 SUBMITTALS

- A. No exception to the referenced specification is made.

PART 2 -- PRODUCTS

2.1 NO EXCEPTION TO THE REFERENCED SPECIFICATION IS MADE.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. Salvage existing fences where shown on the plans and/or required for the construction of the project, including posts and hardware. Replace when construction is complete, including new posts and wire if needed.

- B. Dispose of all concrete items, rubbish and debris outside of the construction zone. It shall be the Contractor's responsibility to secure all required permits and pay all fees associated with the disposal of the material and to secure the disposal site.
- C. The Contractor shall take full responsibility to protect structures or other surface improvements from damage that are not to be removed. If damage to these facilities occurs due to the construction of the project, the Contractor shall replace or repair them.
- D. Where existing pipes are to be abandoned in place, the exposed pipe ends shall be bulkheaded shut with a watertight non-shrink concrete grout at a thickness of not less than one pipe diameter.

******END OF SECTION******

SECTION 02240 - DEWATERING

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to the dewatering of trenches as necessary to construct the elements shown on the drawings or as specified herein.
- B. This item shall be considered exempt from the requirements of Supplementary Condition 11.03.

1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
 - 1. No dewatering payment will be made for dewatering for the construction.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for other associated improvements, as indicated. Such items of work include but are not limited to:
 - 1. The costs of furnishing discharge pumps, rock, piping including bends, and adapters, include in the price bid for tile construction.
 - 2. Protecting existing improvements from damage, include in the price bid for tile construction.
 - 3. Digging a portion of the ditch, allowing it to dewater, and returning later to finish the installation, include in the price bid for tile construction.

1.3 SPECIFICATION REFERENCES

- A. Mn/DOT Specification Section 2451.3C shall apply to the dewatering of trenches, except as modified herein.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

PART 2 -- PRODUCTS

2.1 MATERIALS

- A. None

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

- A. The Contractor shall furnish and install all necessary discharge piping and obtain all permits, easements, rights-of-way, etc. to convey and discharge the water at a sufficient distance from the project area to eliminate recharge of the ground water at the project site.
- B. Water from dewatering operations shall not be discharged where it will pond or cause damage to cropland or personal property due to the presence of standing or flowing water.

- C. Water shall be discharged into temporary sedimentary basins prior to ultimate discharge into natural streams or waterways.

******END OF SECTION******

SECTION 02320 - TRENCH EXCAVATION, BEDDING AND BACKFILL

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to maintenance of utility service, trench excavation, bedding and backfill necessary for the construction of underground utilities and structures, as indicated on the drawings or as specified herein.

1.2 DEFINITIONS

- A. Excess Material - Material that is not needed to complete the earthwork balance.
- B. Suitable Material - Sand, silty sand or low plasticity clay soils with no organic content. The Engineer shall make the final determination as to what material will be considered suitable.
- C. Unsuitable Material - Soil with organic content including topsoil, swamp deposits, peat, muck, or other material deemed by the Engineer to be unsuitable for fill or embankment construction.

1.3 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
 - 1. Rock Excavation
 - (a) No extra payment will be made for rock excavation.
 - 2. Items specifically identified in the *Schedule of Unit Prices* will be compensated in accordance with the description of measurement and payment contained in the section applicable to the individual item. Otherwise, no direct compensation shall be granted for compliance with the provisions contained herein.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the individual pipeline items associated with the stated specific item or work effort. Such items of work include but are not limited to:
 - 1. Interference with other above and underground structures and utilities.
 - (a) The removal and restoration, or protection of existing structures and utilities that are shown on the plans and for which there is no bid item for removing and restoring, or working around the utility.
 - 2. Any dewatering necessary for construction.
 - 3. Foundation materials placed in addition to or in lieu of performing necessary dewatering.
 - 4. Bulkheading of existing pipes to be abandoned in place.
 - 5. Granular foundation, granular bedding and granular encasement materials.
 - 6. Granular foundation materials used in lieu of bedding materials in the specified bedding zone, where specified.
 - 7. Granular foundation materials used in unstable trench conditions.
 - 8. The removal and disposal of native materials that are unsuitable for bedding and/or backfill.

9. Providing and maintaining flow through the existing tiles.
10. The removal of excess materials above the original topography resulting from the additional volume created from pipe and pipe bedding.
11. Delays due to other utility conflicts that result during the course of construction.
12. Protecting existing improvements and previously accepted elements of this construction from damage.
13. Protecting the inverts of other utility pipes from the accumulation of debris and soil, the removal of blockages that threaten to damage property, and/or the cleaning of both the newly constructed lines and the existing lines of all debris and soil that accumulated during the construction.
14. Providing temporary bypass pumping / control of storm water flows around the construction zone, include in the price bid for the associated items being installed.
15. The use of special construction techniques such as trench boxes, sheeting, shoring, etc., include in the price bid for the associated items being installed.
16. Shaping and grading of the construction zone so that surface drainage is restored following the construction.

1.4 SPECIFICATION REFERENCES

- A. Reference CEAM Specification No. 2600 shall apply to excavating, installing bedding, and backfilling all trench excavation construction necessary for the completion of work, except as modified herein.
 1. All references to Mn/DOT specifications shall mean the specific edition, including Supplemental Specifications and Technical Memoranda as identified in Section 01420 of these Specifications.
 2. CEAM Specification 2600.3.A1 Maintenance of Traffic is hereby deleted, See Section 01555 of these Specifications.
 3. CEAM Specification 2600.3.A2 Establishing Line and Grade is modified by Section 01720 of these Specifications.
 4. CEAM Specification 2600.3.A3 Protection of Surface Structures:
 - (a) The last sentence in the third paragraph is deleted.
 5. CEAM Specification 2600.3.A5 Removal of Surface Improvements - All rubble and debris to be disposed of off-site, shall be disposed of at a location secured by the Contractor and in a manner in compliance with applicable Local, State and Federal regulations.
 6. CEAM Specification 2600.3.B3 Excavation Limits and Requirements - OSHA limitations shall also apply to the top of trench width determination. The seven day written notice is waived if changing soil conditions and OSHA compliance apply.
 7. CEAM 2600.3.F1 Turf Restoration is hereby deleted, See Section 02920 of these Specifications.
 8. CEAM 2600.4 Method of Measurement Paragraphs B and C are hereby deleted. See applicable sections of these Specifications.
- B. Reference Mn/DOT Specification No. 2451 shall apply to granular materials for foundation, bedding and encasement of utility line construction, except as modified herein.
- C. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

1.5 SUBMITTALS

- A. No exception to the referenced specification is made.

PART 2 -- PRODUCTS

2.1 GRANULAR MATERIALS

- A. Granular Bedding and Granular Encasement - Granular bedding and granular encasement materials used in the pipe zone in dry conditions shall conform to CEAM specifications, with the gradation limits modified as shown below.

<u>Granular Bedding and Granular Encasement</u>	
Sieve Size	Percent Passing
1½"	100
# 4	35 - 85
# 10	20 - 70
# 40	5 - 35
# 200	0 - 15

- B. Granular Foundation - Granular foundation material shall be rock material, with the gradation limits as modified as shown below. This material shall be used in lieu of standard granular bedding and granular encasement materials where added pipe support is needed due to poor or wet subgrade soil conditions. This rock material shall also be used along with the required trench dewatering to provide for a stable pipe foundation.

<u>Granular Foundation</u>	
Sieve Size	Percent Passing
2"	100
1½"	95 - 100
¾	20 - 40
# 4	0 - 5

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

3.2 EXCAVATION AND PREPARATION OF TRENCH

A. Interference and Protection of Underground Structures

1. If an existing utility is shown on the plans and there is no bid item for removing and restoring, or working around the utility, the Contractor shall be required to remove and restore, or protect the utility.
2. The inverts of existing tiles, culverts, drains, etc. shall be protected during construction. The Contractor is responsible to inspect and clean, if necessary, all lines which have become compromised by the construction operations.

B. Excavation Limits and Requirements

1. The trench for all flexible pipe shall be undercut six-inches below the pipe barrel to permit the installation of granular bedding or foundation material.
2. The Contractor shall be responsible for any damage to adjacent structures or buildings caused by the dewatering operations
3. Use of granular foundation material in lieu of performing dewatering is permitted.

C. Preparation and Maintenance of Foundation

1. Flexible Pipe Materials

- (a) In ordinary trench conditions, the pipe shall be bedded in compacted granular bedding which extends from 6" below the bottom of the pipe to the spring line of the pipe. The Contractor shall bed and encase the pipe in bedding and encasement material, as shown on the plan details. The bedding and encasement shall be compacted to 95% Standard Proctor Density, or as recommended by the pipe manufacturer, whichever is denser.
- (b) Where the trench foundation has been found to be unstable and/or not suitable for pipe support, the trench shall be undercut until acceptable conditions are found. The Contractor shall furnish and install compacted granular foundation material from the bottom of the excavation to the bottom of the pipe. Bedding material shall then be placed to the spring line of the pipe.

3.3 INSTALLATION OF PIPE AND FITTINGS

- A. The Contractor shall keep accurate records as to the location of the tile connections, utility crossings, etc. either constructed or encountered during the construction. Measurements to lines shall be taken from the two nearest permanent structures (i.e., roads, intakes, etc). Final payment for the project will not be made until the information is in the possession of the Owner.
- B. When connection to an existing tile is required, the Contractor shall expose and verify the elevation of the existing tile prior to laying any pipe toward, or away from, the connection point. If the elevation of the existing tile does not match the elevation shown on the plans, the Contractor shall notify the Engineer, at which time the Engineer may adjust the proposed grades.
- C. Connection and Assembly of Joints
 1. For dual wall polyethylene pipe, a soil-tight joint is required.
- D. Bulkheading Open Pipe Ends
 1. The Contractor shall furnish, install and maintain a temporary, water-tight plug adequately blocked in place to prevent flooding of the existing downstream tile system. The plug shall be placed at the beginning of the project or at the end of each working day at the end of the day's operation.
 2. When flows are diverted from an existing tile to be abandoned in place, the Contractor shall construct a water-tight plug on the open end of the abandoned pipe.
 3. Permanent watertight plugs shall be constructed with concrete grout with a thickness of not less than 1 pipe diameter.

3.4 BACKFILLING OPERATIONS

- A. Backfill material around all utilities shall be compacted with hand machines. The maximum lift thickness shall be 6-inches.
- B. Flexible Pipe Materials
 1. Granular bedding and granular encasement material shall be furnished, placed and compacted to bed and encase the pipe to an elevation 12 inches above the pipe the full width of the trench. The

contractor shall bed and encase the pipe in granular bedding and granular encasement material to 95% Standard Proctor Density or as recommended by the pipe manufacturer, whichever is denser. Select native material shall be used above the bedding and encasement material (12-inches above the pipe) up to the bottom of the subgrade excavation zone.

- C. Trench backfill for road crossing shall be compacted in accordance with the Quality Compaction Method. In agricultural fields, no compaction is required on the trench above the bedding and encasement zone.

3.5 SOURCE QUALITY CONTROL

- A. The Contractor shall arrange for having the following testing performed:
 - 1. One (1) gradation test per each 500 tons or 275 cubic yards (CV) of granular materials.

******END OF SECTION*****

SECTION 02370 -EROSION & SEDIMENT CONTROL

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to storm water management as indicated on the plans or as specified herein or as directed by the Engineer.
- B. The Contractor and Owner shall identify a person knowledgeable and experienced in the application of erosion and sediment control BMP's who will oversee the implementation of the SWPPP.
- C. Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001)
 1. The **Owner** has developed a **Storm Water Pollution Prevention Plan (SWPPP)** in accordance with Part III (Storm Water Discharge Design Requirements) of the National Pollutant Discharge Elimination System (NPDES)/State Disposal System Permit that is included in the Appendix or in the drawings.
 2. As a condition of the Award, the Contractor shall assume the role of "**Operator**" under the NPDES Permit by applying and paying for the permit within 7 days of acknowledging the *Notice of Award*. Late submittals will not be rejected; however, the MPCA reserves the right to take enforcement for any unpermitted discharges or permit noncompliance for the new registered party that has assumed control of the site.
 3. For **storm water** discharges from construction activities where the **Owner** or **Operator (Contractor)** changes, the new **Owner** or **Operator** can implement the original **SWPPP** created for the project or develop and implement their own **SWPPP**.
 4. **Permittee(s)** shall ensure either directly or through coordination with other **Permittee(s)** that their **SWPPP** meets all terms and conditions of this permit and that their activities do not render ineffective another party's **erosion prevention** and **sediment control Best Management Practices (BMP's)**."
 5. The Contractor shall maintain copies of the SWPPP on the project site at all times and comply with all provisions contained therein.
 6. Process Summary:
 - (a) Owner issues *Notice of Award* to Contractor
 - (b) Contractor acknowledges the *Notice of Award*
 - (c) Within 7 days of acknowledgement, the Contractor applies and pays for the **MPCA Permit Application** to the MPCA to accept the responsibilities of the "Operator" on the NPDES Permit. Copies of the application shall be sent to the Owner and the Engineer.
 - (d) The Contractor may then review the SWPPP and propose changes or a new SWPPP to the Engineer for review and comment; and the Owner for approval.
 - (1) During the review and modification period, all work performed on the project shall be in compliance with the original SWPPP, including having copies available on the project site.
 - (2) Once a SWPPP is modified / amended, the Contractor shall distribute new copies to the Owner, the Engineer, the on-site project supervisor and the construction observer.

1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
 - 1. Erosion and Sediment Control
 - (a) Payment for "Inlet Protection" shall be at the contract price per EACH for furnishing, installing, maintaining, and removing the materials as detailed in the plans. Eighty percent (80%) of payment shall be made upon installation. The remaining 20% shall be made upon complete removal of the control measure, removal of any accumulated sediment and surface restoration.
- B. The furnishing and installing specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the associated erosion control and excavation items. Such items of work include but are not limited to:
 - 1. Complying with the Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001) – Reference Storm Water Pollution Prevention Plan (SWPPP) included in the Appendix.
 - 2. Maintaining clean exit areas or roads from the site.
 - 3. Clean adjacent roads of excess soil.
 - 4. Cleaning drain tiles and culverts that have been partially or completely obstructed by sediment that originated from the site.
 - 5. Geotextile fabric for rock installation.
 - 6. Emergency erosion control mobilization.

1.3 SPECIFICATION REFERENCES

- A. Mn/DOT Specification Section 2573 shall apply to temporary erosion control.
- B. Mn/DOT Specification Section 1717.2 shall apply to erosion control.
- C. Section 02930 of these specifications shall apply to Rapid Stabilization, if applicable.
- D. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

PART 2 -- PRODUCTS

2.1 EROSION CONTROL

- A. Seeding shall be performed as outlined in Section 02920.

PART 3 -- EXECUTION

3.1 GENERAL

- A. Construction and/or installation of all erosion & sediment control devices shall be completed prior to any soil disturbing activities. The rock check dam shall be installed prior to starting any excavation work.
- B. Prior to construction, the Owner, Engineer and Contractor shall observe the existing open ditch and discharge area and shall document the existing conditions. Upon completion of turf establishment, the open ditch and discharge area shall be observed and all increased sediment deposits shall be removed and disposed of by the Contractor. All increases in sediment deposits shall be considered to have originated from the project site.

- C. Exit areas or roads shall be kept clean of excess soil by routine blading.
- D. The Contractor shall salvage, transport and place cohesive materials excavated from the work for use in constructing berms for temporary sediment traps.

3.2 CONSTRUCTION REQUIREMENTS

- A. A goal of the project during construction is to get the cleanest water possible into the drainage system and protect critical and unique areas. Every effort shall be required by the Contractor to achieve these goals.
- B. The Contractor shall limit the area of disturbance and shall finish shaping and restoring an area before progressing into new areas. **Less than one half mile of tile shall be under construction and not fully graded and leveled at any one time.**
- C. The Contractor shall control drainage and erosion on the project including: haul roads, temporary construction, waste disposal sites, plant and storage locations. The contractor shall clean up the area, shape the area to allow storm runoff with a minimum of erosion and/or siltation, replace topsoil, and establish vegetative cover to the satisfaction of the Engineer on areas where the potential for pollution has been increased due to the Contractor's operations.
- D. If Contractor fails to install and/or perform the appropriate erosion and sediment control practices, as determined by the Engineer, the Engineer may issue a written order to the Contractor. The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the **required work or be subject to a \$ 500 per calendar day deduction for non-completion.**
- E. When the Engineer determines that the erosion and/or sediment control practices installed by the Contractor have failed, the Contractor shall correct the cause and alleviate all sediment deposition, to the fullest extent possible. If the corrective action is not taken in a timely manner, the Engineer may issue a written order to the Contractor. The Contractor shall respond within 24 hours with sufficient personnel, equipment and/or materials and conduct the **required work or be subject to a \$ 500 per calendar day deduction for non-completion.**
- F. The Contractor shall remove all deltas and sediment deposited in drainage ways or tiles and re-stabilize the areas where sediment removal results in exposed soil. The removal and stabilization shall take place within 7 calendar days of discovery.
- G. Where applicable, the Contractor will be required to co-sign for a "General Storm Water Permit" for construction activity with the Minnesota Pollution Control Agency (MPCA). The application form and information is included an appendix of these specifications. The Owner will initiate the Permit process and pay the required "Application Fee." The Contractor will be required to comply with all of the terms and conditions of the Permit that also includes performing the required inspections of the erosion control devices and maintaining an Inspector's Log for the MPCA Storm Water Permit. A copy of the proposed log form is available from the Engineer.
- H. Energy dissipation or other outlet treatment must be installed within 24 hours of connection to surface water.

3.3 EROSION CONTROL

- A. Unless precluded by snow cover, all exposed soil areas, including topsoil stockpiles, shall have temporary erosion control or permanent cover for the exposed soil areas within 14 days where the area has not been, or will not be, worked by the Contractor.

NOTE THAT THIS REQUIREMENT WILL RESULT IN MULTIPLE MOBILIZATIONS IN ORDER TO PROVIDE THE REQUIRED STABILIZATION.

3.4 SEDIMENT CONTROL

- A. The Contractor shall install Sediment Control Devices where control is required and/or where directed by the Engineer. The control measures as shown on the plans shall be considered the minimum requirements with additional measures required dependent on construction sequencing and scheduling.
- B. Inlet Protection shall be used around inlets and/or other surface water accesses to any existing or proposed storm water conveyance system.
- C. The Contractor shall take all steps necessary to prevent excess soil erosion of the project. Temporary erosion control devices shall be constructed, maintained and left in place to such time as permanent erosion control measures are in place or instructed to remove them by the Engineer.
- D. The Contractor shall construct temporary sediment traps with granular outlets within the disturbed area and shall stockpile a sufficient quantity of suitable fill material to regrade sedimentation ponds and temporary ditches to match the subgrade elevation.

3.5 INSPECTION AND MAINTENANCE:

- A. The Contractor shall routinely inspect the construction site once every seven (7) days during active construction and within 24 hours of a rainfall event greater than 0.5 inches in a 24 hour period.
- B. All inspections performed during construction must be recorded and records retained with the SWPP in accordance with the Storm Water Permit.
- C. Silt fence, erosion control, and other BMP's must be replaced, repaired, or supplemented when they reach 50% design load.

3.6 FINAL STABILIZATION:

- A. The Contractor shall ensure final stabilization of the site. The Contractor shall submit a Notice Of Termination within 30 days after final stabilization is complete or control has been passed to another owner.
- B. The Contractor shall remove all temporary erosion control measures and BMP's as part of the final site stabilization.
- C. The storm water permit further defines final stabilization and its requirements.

*****END OF SECTION*****

SECTION 02625 – AGRICULTURAL DRAIN TILE

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to drain tile construction as indicated on the drawings or as specified herein.

1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:

1. Drain Tile Pipe

- (a) Measurement of main line drain tile pipe shall be along the centerline of the pipe. Payment shall be at the unit price bid for the specified size, type and class of pipe, regardless of depth.

2. Tile Connections

- (a) Measurement for the connection of existing lateral drain tile to the new main line tile where necessary, shall be per each connection and paid for at the unit price bid.

- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the drain tile items, as indicated. Such items of work include but are not limited to:

1. Excavating, salvaging, stockpiling and replacing the full depth of existing topsoil over the trench in agricultural and turf areas, include in the price bid for drain tile.
2. Providing, installing and compacting granular bedding and encasement material for the polyethylene tile construction.
3. Providing and installing granular foundation materials if unsuitable soils are encountered, include in the price bid for drain tile.
4. Furnishing and placing geotextile fabric at open pipe joints, include in the price bid for drain tile.
5. Furnishing and installing necessary bends, fittings, wyes, tees and adaptors on the drain tile line, include in the unit price bid for the drain tile.
6. Providing an inventory of additional pipe, bends, fittings, wyes, tees and adaptors of various sizes at the project site to accommodate changes which occur during construction and ordering additional materials as needed to complete the work, include in the price bid for drain tile.
7. Marking the location of existing tiles with lathe so that the Engineer can record the location on the plan, include in the price bid for lateral tile connection.
8. Connection of existing lateral drain tiles to the new main tile, including tees, wyes, bends and fittings, include in the price bid for lateral tile connection.
9. Performing the required 12 inch deep tillage of all disturbed areas, include in the price bid for drain tile.
10. Trench excavation, backfill and compaction, include in the price bid for drain tile.
11. Bulkheading of existing pipes to be abandoned in place, include in the price bid for drain tile.

12. Maintenance of an appropriate drain tile outlet during construction, include in the price bid for drain tile.
13. Dewatering or trench pumping necessary for drain tile construction, include in the price bid for drain tile.
14. Removing and replacing fences as necessary to construct the improvements, include in the price bid for drain tile.
15. Removing and disposing of miscellaneous trees and brush necessary to construct the improvements, include in the price bid for drain tile.
16. Delays due to other utility conflicts, which result during the course of construction, include in the price bid for drain tile.
17. Protecting existing improvements from damage, include in the price bid for drain tile.
18. Protecting the inverts of other pipes from the accumulation of debris and soil, the removal of blockages which threaten to damage property, and/or the clearing of both the newly constructed lines and the existing lines of all debris and soil which accumulated during construction, include in the unit price bid for drain tile.
19. Interference and protection of underground structures and utilities, include in the price bid for drain tile.
 - (a) The removal and restoration, or protection of existing utilities for which there is no bid item for removing and restoring, or working around the utility.
 - (b) The utility information included on the Plan may not be complete and is furnished from information supplied by various utility companies as an indication of the presence of utility lines in the vicinity of construction. The Contractor shall contact the utility companies to determine the extent and exact location of their facilities. In the event of accidental damage to any such facility, the Contractor shall immediately notify the utility company and cooperate fully in whatever is necessary to repair such facility or restore service.

1.3 SPECIFICATION REFERENCES

- A. Reference Section 02320 of these Specifications for trench excavation, bedding and backfill, except as modified herein.
- B. CEAM Specification No. 2621 shall apply to construction of pipe sewers/drain tile, except as modified herein.
- C. MnDOT Specification No. 2503 shall apply to measurement and payment of pipe sewers/drain tile, except as modified herein.
- D. MnDOT Standard Plates Manual with latest revisions.
- E. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

PART 2 -- PRODUCTS

2.1 DRAIN TILE PIPE

- A. Perforated Dual Wall Polyethylene Pipe
 1. Dual wall perforated and non-perforated corrugated polyethylene pipe shall conform to the requirement of the American Society for Testing Materials F2648 and shall be perforated or non-perforated as shown on the plans. Perforated pipe shall be installed with woven geotechnical sock. Joints shall be water tight gasketed joints.

B. Reinforced concrete pipe

1. All reinforced concrete pipe shall meet MnDOT Standard Plate 3000 or 3006.
2. Reinforced concrete pipe shall conform to MnDOT 3236 with tongue and groove joints, Class 3 minimum except as shown otherwise on the plans. Provide geotextile wrap of all joints.
3. Pipe ties shall be required for all joints.
4. Fittings for bends and lateral tile connections shall be precast.
5. Connections of private tile shall be made by sawing a hole in the pipe and making a field connection using inserta-tee fittings or equivalent connections.

2.2 GEOTEXTILE FABRIC

- A. Mn/DOT 3733, Type I, knit sock.

PART 3 -- EXECUTION

3.1 INSTALLATION OF PIPE AND FITTINGS

A. Drain Tile

1. All piping shall be installed in accordance with the details in the Plans. Granular bedding and encasement materials shall be installed and compacted as noted.

B. Equipment

1. The use of rubber tired earth moving equipment shall not be permitted on the agricultural fields. Backfill and leveling shall be accomplished with dozers.

C. Bulkheading Open Pipe Ends

1. When flows are diverted from an existing drain tile to be abandoned in place, the Contractor shall construct a water-tight plug on the open ends of the abandoned tile. The plugs shall be constructed with concrete grout and with a thickness of not less than 1 pipe diameter.

D. Backfilling

1. The initial lift of native backfill material, from the top of the granular material to 2' higher, shall be gently placed with a backhoe to avoid placing rocks on the pipe and to avoid impacting the pipe.

3.2 DRAIN TILE CONNECTIONS

A. Connect to Main Tile

1. When connection to an existing tile or concrete main is made, the Contractor shall expose and verify the elevation of the existing tile prior to laying any tile to, or from, the connection point. If the elevation of the existing tile does not match the elevation shown on the plans, the Contractor shall notify the Engineer, at which time the Engineer may adjust the proposed grades.
2. When connecting to a plastic main, appropriate fittings shall be furnished and installed for the connection so that the main tile does not need to be cut for the connection.
3. If there is a vertical elevation difference of more than 2 feet between the existing tile and the new tile connection, the existing tile shall be reconstructed upstream to a point where the tile can be laid at a 45 degree slope to the connection. The tile shall rest on undisturbed soil or soil which has been compacted to a density of the adjacent soil.

****END OF SECTION****

SECTION 02630 – SURFACE WATER INTAKES

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to intake construction as indicated on the drawings or as specified herein.

1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
 - 1. Surface Water Intakes
 - (a) Surface water intakes shall be measured by the individual unit based on the inside diameter of the riser.
- B. The furnishing and installing of specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the intake items, as indicated. Such items of work include but are not limited to:
 - 1. Locating and connecting to drain tile, include in the price bid for Surface Water Intakes.
 - 2. The costs of furnishing bends and adapters, include in the price bid for Surface Water Intakes.
 - 3. Trench excavation, backfill and compaction, include in the price bid for Surface Water Intakes.
 - 4. Furnishing and installing a Hickenbottom riser, or approved equal, on the intake.
 - 5. Furnishing and installing a field marker at each intake.

1.3 SPECIFICATION REFERENCES

- A. Reference Section 02320 of these Specifications for trench excavation, bedding and backfill, except as modified herein.
- B. CEAM Specification No. 2621 shall apply to construction of pipe, except as modified herein.
- C. Mn/DOT Standard Plates Manual with latest revisions.
- D. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

PART 2 -- PRODUCTS

2.1 PIPE AND FITTINGS

- 1. Dual Wall polyethylene pipe as specified in Section 02625.
- 2. Hickenbottom tee and riser sections, or approved equal.

2.2 GEOTEXTILE FABRIC

- A. Mn/DOT 3733, Type II, non-woven for use in wrapping joints in pipe.

PART 3 -- EXECUTION

- A. Surface water intake locations and sizes will be staked by the Engineer as the project progresses. Surface water intakes shall be constructed within two days following the tile construction.
- B. The Contractor shall assure that surface water has an outlet at all times into either the existing tile system, or once it is constructed, the new tile. If the Contractor fails to provide such an outlet, any claims for crop damages will be deducted from payments to the Contractor.
- C. Additional grading shall be performed around the intakes to permit farming operations around the intakes.

******END OF SECTION******

SECTION 02920 - TURF RESTORATION

PART 1 -- GENERAL

1.1 SUMMARY

- A. This section covers the furnishing of all labor, materials, tools, equipment and performances of all work and services necessary or incidental to turf restoration as indicated on the drawings or as specified herein.
- B. A goal of the project during construction is to get the cleanest water possible into the protected drainage systems as quickly as possible and protect critical and unique areas. Every effort shall be required by the Contractor to achieve these goals.
- C. Temporary seeding may be necessary during construction in erosion sensitive areas. The Contractor shall do temporary seeding work as specified herein, as required to comply with the MPCA permit or as directed by the Engineer at no additional expense.

1.2 METHOD OF MEASUREMENT AND PAYMENT

- A. Measurement and compensation for the following items shall be paid according to the referenced specification or as modified below:
 - 1. Payment for seeding shall include the costs for furnishing and placing the designated seed mixture, fertilizer and mulch at the rate specified and shall be measured by the ACRE.
- B. The furnishing and installing specific items and/or the performance of work under certain circumstances shall not be individually paid. The costs shall be included in the unit price bid for the associated seeding and sodding items. Such items of work include but are not limited to:
 - 1. Complying with the Minnesota Pollution Control Agency (MPCA) - General Storm Water Permit for Construction Activity (MN R100001) – Reference Section 02370 – Storm Water Pollution Prevention Plan (SWPPP).
 - 2. Subgrade preparation and topsoil placement as required on all areas shown on the plans.
 - 3. Maintenance of newly seeded areas, as specified, include in the unit price for the associated items.
 - 4. All re-work necessary to repair areas that do not grow, include in the unit price for the associated items.

1.3 SPECIFICATION REFERENCES

- A. Mn/DOT Specification Sections 2575, 3876, and 3878, Controlling Erosion, Establishing Vegetation and Seed shall apply to the establishment of grass and sod as shown on the plans.
- B. Unless noted otherwise, the provisions in this section are in addition to the referenced specification.

PART 2 -- PRODUCTS

2.1 MATERIALS

- A. Seeding Items
 - 1. The seed mixtures to be used are shown below. In general, all application rates for mixes, except oats, are 150% the rate in Mn/DOT Table.
 - 2. Seeding with the various seed mixture designations shall utilize the following combinations of seed, fertilizer and mulch:

- (a) Type 1 mulch shall consist of clean straw with no pasture hay.
- (b) Temporary seeding, if required, shall use Seed Mixture – 110B Oats.
- (c) Fertilizer shall be 22-5-10. (Phosphorous use in fertilizer for first establishment and the first year is allowed unless limited or prohibited by local ordinances.)

APPLICATION RATES						
Seed Mix	FERTILIZER		MULCH		Typical Use	
	Rate	Type	Rate	Type		
	lb/AC		lb/AC	ton/AC		
25-141 (Mesic General Roadside)	105	22-5-10	200	1	2	All.
21-111 (Oats)	100	22-5-10	200	1	2	All, temporary seeding
Temporary Stabilization- Ag Areas				1	2	Pipe Trench Areas

B. Seed Mixtures:

- 1. The application rates for Mn/DOT seed mixes shall be at 1.5 times that specified in the referenced specification.

PART 3 -- EXECUTION

3.1 CONSTRUCTION REQUIREMENTS

A. GENERAL

- 1. Prior to construction, the Owner, Engineer and Contractor shall observe the existing storm water outfall system and discharge area and shall document the existing conditions. Upon completion of surface restoration (i.e., paving and turf establishment), the storm water outfall system and discharge area shall be observed and all increased sediment deposits shall be removed and disposed of by the Contractor. All increases in sediment deposits shall be considered to have originated from the project site.
- 2. Prior to construction, the Owner, Engineer and Contractor shall review the project to identify critical areas that could require rapid stabilization during the construction process, and develop a plan to either mitigate disturbance to those areas or identify the methods of rapid stabilization most appropriate.
- 3. If Contractor fails to install and/or perform the appropriate rapid stabilization practices and immediate ditch seeding within 7 days following final slope shaping, the Contractor will **be subject to a \$ 500 per calendar day deduction for non-completion.**
- 4. The subgrade shall be shaped to approximate contour of the finished surface. All construction debris shall be removed from the area prior to the placement of the topsoil.
- 5. The topsoil shall be shaped to the approximate the contour of the finished surface, with a minimum depth of 12-inches.. All construction debris shall be removed from the area prior to seeding. The topsoil shall be loosened with a disc or harrow to its full depth prior to seeding.
- 6. The Contractor shall be responsible for providing water and maintenance until final acceptance by the Engineer or Owner, to firmly establish the seed. The term maintenance shall include mowing, weed control and watering, as necessary.
- 7. The Contractor shall remove all rocks and debris from the surface prior to seeding and mulching.

B. SEEDING REQUIREMENTS

- 1. Turf establishment by seeding shall be done utilizing the various combinations of seed mixtures, fertilizing and mulching as described.
- 2. Areas prepared for seeding shall be free of rocks, debris and clumps of soil. The areas shall be graded uniformly dragged until free of chunks exceeding 1 inches diameter.

3. Seed shall be applied with a drill seeder, unless otherwise approved in writing by the Engineer.
4. The Contractor shall furnish weight tickets documenting pounds of fertilizer placed and pounds of seed placed. The seed tickets shall show individual plant species along with the percent purity and percent germination. The fertilizer tickets shall show mix proportions. The Contractor shall also furnish its QA/QC data to the Engineer.
5. Dormant seeding and snow seeding may be utilized in accordance with the referenced specification and technical memorandum, provided the final acceptance standards are met.
6. Final acceptance of seeding shall be based on an established growth of 6-inches with a uniform density to cover 70% of the designated area, free of weeds and bare spots. Any re-seeding necessary shall be performed at the Contractor's expense.

******END OF SECTION******

Exhibit 7: ROW Table

Improvement of County Ditch No. 15

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Right-of-way Table

H:\LYCO\S15116766\3_Design\A_Calculations\[116766_ROW.xlsx]Sheet1

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Parcel No.	Property Owner	Legal Description	Improvement Right-of-Way Damages				Amount/Ac	
			Station to Station	Length	Width	Area (Acres)	\$600	
Main								
74-018-3040	Bitker/Gary & Cheryl	NW 1/4 SW 1/4 18-111-39	412+00	424+00	1200	80	2.21	\$1,326.00
02-013003-0	Christianson/John V	NE 1/4 SE 1/4 13-111-40	424+00	427+00	300	80	0.56	\$336.00
02-013006-0	Christianson/John V	SE 1/4 NE 1/4 13-111-40	427+00	442+75	1575	80	2.90	\$1,740.00
		SW 1/4 NE 1/4 13-111-40	442+75	444+60	185		0.00	
02-013007-0	Christianson/John V	NW 1/4 NE 1/4 13-111-40	444+60	447+10	250	80	0.46	\$276.00
02-013006-0	Christianson/John V	NW 1/4 NE 1/4 13-111-40	447+10	461+15	1405	80	2.59	\$1,554.00
02-013001-0	Christianson/John V	NE 1/4 NW 1/4 13-111-40	461+15	465+85	470	80	0.87	\$522.00
02-012004-0	Labat/ John & Lynette	SE 1/4 SW 1/4 12-111-40	466+50	481+00	1450	80	2.67	\$1,602.00
		SW 1/4 SW 1/4 12-111-40	481+00	485+00	400	80	0.74	\$444.00
		NW 1/4 SW 1/4 12-111-40	485+00	493+40	840	80	1.55	\$930.00
02-012004-1	Labat/ John & Lynette	NW 1/4 SW 1/4 12-111-40	493+40	494+75	135	80	0.25	\$150.00
02-012004-0	Labat/ John & Lynette	NW 1/4 SW 1/4 12-111-40	494+75	500+40	565	80	1.04	\$624.00
02-012002-1	Deblieck/Norman R	SW 1/4 NW 1/4 12-111-40	500+40	515+50	1510	80	2.78	\$1,668.00
		NW 1/4 NW 1/4 12-111-40	515+50	520+80	530	80	0.98	\$588.00
02-011001-0	Coudron/Lois M & Richard J	NE 1/4 NE 1/4 11-111-40	521+80	538+90	1710	80	3.15	\$1,890.00
02-011004-0	Mahoney/Mary/Trust	NW 1/4 NE 1/4 11-111-40	538+90	555+30	1640	80	3.02	\$1,812.00
		SW 1/4 NE 1/4 11-111-40	555+30	563+50	820	80	1.51	\$906.00
		SE 1/4 NW 1/4 11-111-40	563+50	577+75	1425	80	2.62	\$1,572.00
		SW 1/4 NW 1/4 11-111-40	577+75	583+45	570	80	1.05	\$630.00

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Right-of-way Table

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Parcel No.	Property Owner	Legal Description	Improvement Right-of-Way Damages					Amount/Ac
			Station to Station	Length	Width	Area (Acres)	\$600	
02-011003-0	Denny O Living Trust & LA O Living Trust	NW 1/4 SW 1/4 11-111-40	583+45	597+75	1430	80	2.63	\$1,578.00
		SW 1/4 SW 1/4 11-111-40	597+75	606+70	895	80	1.65	\$990.00
		SE 1/4 SW 1/4 11-111-40	606+70	613+80	710	80	1.31	\$786.00
02-014002-0	Castle/Allen L/Revocable Trust	NE 1/4 NW 1/4 14-111-40	614+58	614+60	2	80	0.01	\$6.00
Branch 22								
74-018-3040	Bitker/Gary & Cheryl	NW 1/4 SW 1/4 18-111-39	0+00	1+95	195	80	0.36	\$216.00
74-018-2020	Brey/Barbara	SW 1/4 NW 1/4 18-111-39	1+95	17+15	1520	80	2.80	\$1,680.00
		NW 1/4 NW 1/4 18-111-39	17+15	35+62	1847	80	3.40	\$2,040.00
Branch 23								
74-018-3040	Bitker/Gary & Cheryl	NW 1/4 SW 1/4 18-111-39	41+00	49+20	820	80	1.51	\$906.00
02-103003-0	Christianson/John V	NE 1/4 SE 1/4 13111-40	49+20	64+55	1535	80	2.82	\$1,692.00
02-013002-0	Christianson/John V	NW 1/4 SE 1/4 13-111-40	64+55	79+55	1500	80	2.76	\$1,656.00
		NE 1/4 SW 1/4 13-111-40	79+55	96+00	1645	80	3.03	\$1,818.00
02-013004-0	Christianson/John V	NW 1/4 SW 1/4 13-111-40	96+00	111+28	1528	80	2.81	\$1,686.00
02-014005-0	GBT Enterprises	SE 1/4 NE 1/4 14-111-40	115+60	121+50	590	80	1.09	\$654.00
02-014001-0	GBT Enterprises	NE 1/4 SE 1/4 14-111-40	121+50	129+00	750	80	1.38	\$828.00
		NW 1/4 SE 1/4 14-111-40	129+00	140+90	1190	80	2.19	\$1,314.00
		SW 1/4 SE 1/4 14-111-40	140+90	146+50	560	80	1.03	\$618.00
		SE 1/4 SE 1/4 14-111-40	146+50	161+40	1490	80	2.74	\$1,644.00
02-023008-0	Schmidt/Lawrence	NE 1/4 NE 1/4 23-111-40	162+75	170+80	805	80	1.48	\$888.00
02-024002-0	Schmidt/Lawrence	NW 1/4 NW 1/4 24-111-40	173+85	177+50	365	80	0.68	\$408.00

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Right-of-way Table

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Parcel No.	Property Owner	Legal Description	Improvement Right-of-Way Damages					Amount/Ac
			Station to Station	Length	Width	Area (Acres)	\$600	
		SW 1/4 NW 1/4 24-111-40	177+50	177+61	11	80	0.03	\$18.00
Branch 24								
02-013001-0	Christianson/John V	NE 1/4 NW 1/4 13-111-40	200+50	213+40	1290	80	2.37	\$1,422.00
		NW 1/4 NW 1/4 16-111-40	213+40	220+60	720	80	1.33	\$798.00
02-013005-0	Christianson/John V	NW 1/4 NW 1/4 13-111-40	220+60	221+78	118	80	0.22	\$132.00
Branch 24A								
02-013001-0	Christianson/John V	NE 1/4 NW 1/4 13-111-40	300+50	305+10	460	80	0.85	\$510.00
02-013007-0	Christianson/John V	NE 1/4 NW 1/4 13-111-40	305+10	314+85	975	80	1.80	\$1,080.00
02-013006-0	Christianson/John V	NE 1/4 NW 1/4 13-111-40	314+85	315+94	109	80	0.21	\$126.00
Branch 25								
02-012004-0	Labat/ John & Lynette	SW 1/4 SW 1/4 12-111-40	350+50	362+65	1215	80	2.24	\$1,344.00
		SW 1/4 SW 1/4 12-111-40	362+52	364+90	238	80	0.44	\$264.00
02-012004-1	Labat/ John & Lynette	NW 1/4 SW 1/4 12-111-40	364+90	365+35	45	80	0.09	\$54.00
02-011002-0	GBT Enterprises	NE 1/4 SE 1/4 11-111-40	366+33	381+60	1527	80	2.81	\$1,686.00
		SE 1/4 SE 1/4 11-111-40	381+60	385+50	390	80	0.72	\$432.00
02-011002-1	K&J BAAB Newman Family LLLP	SW 1/4 SE 1/4 11-111-40	385+50	397+00	1150	80	2.12	\$1,272.00
02-014005-0	GBT Enterprises	NW 1/4 NE 1/4 14-111-40	397+75	398+01	26	80	0.05	\$30.00
Branch 25A								
02-011002-0	GBT Enterprises	NE 1/4 SE 1/4 11-111-40	0+58	2+40	182	80	0.34	\$204.00
		SE 1/4 SE 1/4 11-111-40	2+40	15+60	1320	80	2.43	\$1,458.00

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Right-of-way Table

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Parcel No.	Property Owner	Legal Description	Improvement Right-of-Way Damages				Amount/Ac	
			Station to Station	Length	Width	Area (Acres)	\$600	
02-014005-0	GBT Enterprises	NE 1/4 NE 1/4 14-111-40	16+30	20+90	460	80	0.85	\$510.00
02-013001-0	Christianson/John V	NW 1/4 NW 1/4 13-111-40	22+25	25+79	354	80	0.66	\$396.00
Branch 26								
02-012002-1	Deblieck/Norman R	SW 1/4 NW 1/4 12-111-40	0+29	6+30	601	80	1.11	\$666.00
02-011001-0	Coudron/Lois M & Richard J	SE 1/4 NE 1/4 11-111-40	7+30	22+15	1485	80	2.73	\$1,638.00
02-011004-0	Mahoney/Mary/Trust	SW 1/4 NE 1/4 11-111-40	22+15	30+25	810	80	1.49	\$894.00
02-011002-1	K&J BAAB Newman Family LLLP	NW 1/4 SE 1/4 11-111-40	30+25	45+65	1540	80	2.83	\$1,698.00
02-011003-0	Denny O Living Trust & LA O Living Trust	NE 1/4 SE 1/4 11-111-40	45+65	46+17	52	80	0.10	\$60.00
Branch 27								
02-012002-1	Deblieck/Norman R	NW 1/4 NW 1/4 12-111-40	0+32	16+86	1654	80	3.04	\$1,824.00
Total			Total Improvement Right-of-Way Damages =				97.49	\$58,494.00