

Preliminary Hearing
Polk County Ditch 80 Improvements; and Establishment of Lateral 1 and Lateral 2
Sand Hill River Watershed District Office
Fertile, MN
April 23, 2018
8 AM

1. **Attendance:** Staff members present were Daniel Wilkens – SHRWD Administrator, and April Swenby SHRWD Administrative Assistant. District Engineer, Zach Herrmann – Houston Engineering. Managers present were Stuart Christian, Clayton Bartz, Roger Hanson, Dan Vesledahl, and JJ Hamre. Others in attendance included the following: Pat Taylor, Stephen Taylor, Lawrence Ricard, Eric Solheim, Elliott Solheim, Bruce VonHoldt, Kyle Stromstad, Bruce Stromstad, Paul Engelstad, Brent Gullekson, Brian Gullekson, Alex Engelstad, and Mike Skaug.
2. **Welcome:** Administrator Wilkens welcomed the group and introduced the Sand Hill River Watershed Board of Managers.
3. **Examination of the Petition:** Herrmann confirmed that the district’s attorney has examined the petition to determine its legality and that it was signed by the owners of at least 26 percent of the property area that the proposed improvement passes over. Pursuant to **MN Statute 103E.215**, the petition was verified that it meets the legal criteria for the improvement. Herrmann verified with the group that the following criteria has been met.
 - Designate the drainage system proposed to be improved by number or another description that identifies the drainage system;
 - State that the drainage system has insufficient capacity or needs enlarging or extending to furnish sufficient capacity or a better outlet;
 - Describe the starting point, general course, and terminus of any extension;
 - Describe the improvement, including the names and addresses of owners of the 40-acre tracts or government lots and property that the improvement passes over;
 - State that the proposed improvement will be of public utility and promote the public health; and
 - Contain an agreement by the petitioners that they will pay all costs and expenses that may be incurred if the improvement proceedings are dismissed.
 - A bond has been furnished by the petitioners.

Pursuant to **MN Statute 103E.225**, the petition was verified that it meets the legal criteria for the lateral statutes. The petition was signed by at least 26 percent of the property area that the proposed laterals pass over, and that the following criteria has been met.

- Describe in general terms the starting point, general course, and terminus of the proposed lateral;
- Describe the property traversed by the lateral including the names and addresses of the property owners from records in the county assessor's office;
- State the necessity to construct the lateral;
- State that, if constructed, the lateral will be of public benefit and utility and promote the public health;
- Request that the lateral be constructed and connected with the drainage system; and
- Provide that the petitioners will pay all costs incurred if the proceedings are dismissed or if a contract for the construction of the lateral is not awarded.
- A bond has been furnished by the petitioners.

The bond is within the amount required.

4. **Opening Comments and Review of Problems and Solutions:** Herrmann reviewed with the audience the purpose for the improvement and laterals.

The purpose of the proposed Improvements and establishment of Laterals 1 and 2 are the following:

- The existing Polk County Ditch 80 has insufficient capacity and needs enlargement and/or extending (through laterals) to furnish sufficient capacity to control flooding and erosion.
- Steep channel gradeline and sideslopes result in channel erosion.
- Inability for contributing watershed to access the ditch channel. Approximately 58% (1,600 acres) of the total drainage area currently has no access to Ditch 80 until the ¼ line of Section 26, Russia Township.
- Road overtopping and overland flow in Section 36, Russia Township causes erosion and overland flooding.

The following solutions were proposed:

- Improve Polk County Ditch 80 by;
 - Flatten side slopes
 - Reduce channel gradient by use of rock drop structures, and
 - Provide sufficient depth for Lateral outlets
- Establish Laterals to provide hydraulic capacity for draining lands to access Ditch 80

5. **Review of Preliminary Engineer's Report:**

- a. Overview: Herrmann displayed a map that outlined the extents of the area contributing to the Polk County Ditch 80 Improvement, Lateral 1, and Lateral 2. This area is approximately 4.3 square miles. The location of the Improvement and Laterals 1 and 2 is on the beach ridge of the Red River Basin. This area is characterized by moderate to steep landscape slopes. In order to reduce erosion within earthen channels, riprap drop structures are proposed to provide channel grade stabilization. Herrmann used the display map to explain the direction of the drainage and the existing benefitted and estimated drainage area for the proposed project.
- b. Polk County Ditch 80 Improvement: Herrmann reviewed the location of the Polk County Ditch 80 Improvement, which begins at the outlet of Polk County Ditch 80 into SHRWD Project 17, near the center of Section 27, Russia Township, Polk County. The Improvement then travels east (upstream) along the ¼ Section Line of Sections 27, 26, and 25, all of Russia Township, Polk County. The proposed Improvement then continues east along the ¼ Section Line of Section 30, Onstad Township, Polk County.

Within Section 27 of Russia Township, the existing Ditch 80 channel depths will be increased by approximately 1-2 feet. Riprap drop structures will be used to provide a stable channel gradient. In between each riprap drop structure, the improved ditch channel will be constructed to a 0.05% grade. The existing 48-inch diameter reinforced concrete pipe (RCP) through Polk County Road 48, between Sections 27 and 26, Russia Township, will be increased to a 72-inch diameter RCP.

Ditch 80 channel depths within Section 26 of Russia Township will be increased by approximately 1-3 feet, with depths gradually increasing moving to the east. This increased channel depth is required to provide adequate depth for the outlets of Lateral 1 and Lateral 2. The channel will be constructed to a 0.05% grade. The existing 48-inch diameter corrugated metal pipe (CMP) through 200th Avenue SW, between Sections 27 and 26, Russia Township, will be increased to a 72-inch by 52-inch CMP-Arch.

Moving east through Section 25 of Russia Township, the existing Ditch 80 channel depths will be increased by approximately 0-2 feet. Riprap drop structures will be used to provide a stable channel gradient. In between each riprap drop structure, the Improved ditch channel will be constructed to a 0.07%-0.10% grade. The existing 48-inch CMP culvert crossing at 190th Avenue SW, between Sections 26 and 25, Russia Township, will remain.

The existing Ditch 80 channel depths within Section 30 of Russia Township will increase by approximately 0-2 feet. Riprap drop structures will be used to provide a stable channel gradient. In between each riprap drop structure, the Improved ditch channel will be constructed to a 0.10% grade. A riprap drop structure will be constructed at the upstream limits of the proposed Improvement project.

The design cross section was explained by Herrmann for the proposed Improvement. The channel will be constructed with an 8-foot channel bottom width and 4:1 (horizontal to vertical ratio) side slopes. Before any excavation would occur, the in-place top soil would be removed and stockpiled within the designated construction extents. Spoil would then be placed adjacent to the constructed ditch channel to provide a minimum 1-rod (16.5-foot) horizontal bench, and a 10:1 or flatter field side slope. After spoil placement is completed, the stockpiled top soil would then be redistributed evenly over the disturbed areas. Permanent easement would be secured beyond the existing right-of-way to include the ditch bottom, side slopes, and 1-rod buffer strip. This area would then be seeded into perennial vegetation. A temporary easement would be secured for the area beyond the extents of the permanent easement and would be used for spoil placement and equipment staging during construction. Upon completion of the Improvement project, all land rights acquired through the temporary easement would be returned to the owner.

- c. Establishment of Lateral 1: Herrmann reviewed the location of Lateral 1. The proposed Lateral 1 outlets into Polk County Ditch 80 near the center of Section 27 of Russia Township, Polk County. Lateral 1 then travels upstream (south) to the culvert crossing at the ¼ Section Line between Sections 27 and 35 of Russia Township, Polk County. Rock riprap would be used at the outlet of Lateral 1 to prevent erosion in Polk County Ditch 80. The existing channel along Lateral 1 consists of a shallow field swale. Lateral 1 would increase channel depths by approximately 2 feet and would be constructed at a 0.05% grade. At the upstream end of Lateral 1, the existing 36-inch diameter CMP would be removed and replaced with a lower 36-inch CMP set at the ditch bottom.

The design cross section was explained by Herrmann for the proposed Lateral 1. The channel will be constructed with an 8-foot channel bottom width and 4:1 (horizontal to vertical ratio) side slopes. Before any excavation would occur, the in-place top soil would be removed and stockpiled within the designated construction extents. Spoil would then be placed adjacent to the constructed ditch channel to provide a minimum 1-rod (16.5-foot) horizontal bench, and a 10:1 or flatter field side slope. After spoil placement is completed, the stockpiled top soil would then be redistributed evenly over the disturbed areas. Permanent easement would be secured beyond the existing right-of-way to include the ditch bottom, side slopes, and 1-rod buffer strip. This area would then be seeded into perennial vegetation. A temporary easement would be secured for the area beyond the extents of the permanent easement and would be used for spoil placement and equipment staging during construction. Upon completion of construction, all land rights acquired through the temporary easement would be returned to the owner.

- d. Establishment of Lateral 2: Herrmann reviewed the location of Lateral 2. Lateral 2 outlets into Polk County Ditch 80 just upstream (east) of the Ditch 80 culvert crossing at 200th Avenue SW. Lateral 2 then travels upstream (south) along the east road ditch of 200th Avenue SW, just east of the west line of Section 25, Russia Township. Lateral 2 would then cross 390th Street SW and turns to the east within the south road ditch of 390th Street SW, located just south of the north line of Section 36, Russia Township. The upstream end of Lateral 2 includes the culvert crossing between Section 36, Russia Township, and Section 31, Onstad Township.

Within Section 26, Russia Township, the existing township road depths along the east ditch of 200th Avenue SW will be increased by approximately 1-2 feet and will be constructed at a 0.06% grade. The existing 24-inch diameter CMP field approach to the east off 200th Avenue SW, located approximately 30 feet south of the centerline of Ditch 80, will be replaced with a 71-inch by 47-inch CMP-Arch. Another 71-inch by 47-inch CMP-Arch will be installed under 390th Street SW.

The existing township road depths along the south ditch of 390th Avenue SW will be increased by approximately 0-2 feet and will be constructed at a 0.10% grade. Riprap drop structures will be used to provide a stable channel gradient. In between each riprap drop structure, the Improved ditch channel will be constructed to a 0.10% grade. At the upstream limits of Lateral 2, the existing 48-inch diameter CMP through 190th Avenue SW will be replaced with a 64-inch by 43-inch CMP-Arch.

The design cross section was explained by Herrmann for the proposed Lateral 2. The channel will be constructed with an 8-foot channel bottom width and 4:1 (horizontal to vertical ratio) side slopes. Before any excavation would occur, the in-place top soil would be removed and stockpiled within the designated construction extents. Spoil would then be placed on the field side of the constructed ditch channel to provide a minimum 1-rod (16.5-foot) horizontal bench, and a 10:1 or flatter field side slope. After spoil placement is completed, the stockpiled top soil would then be redistributed evenly over the disturbed areas. Permanent easement would be secured beyond the existing right-of-way to include the ditch bottom, side slopes, and 1-rod buffer strip. This area would then be seeded into perennial vegetation. A temporary easement would be secured for the area beyond the extents of the permanent easement and would be used for spoil placement and equipment staging during construction. Upon completion of construction, all land rights acquired through the temporary easement would be returned to the owner.

Two issues with the existing drainage in the NE ¼ of Section 36, Russia Township, is 1) frequent snow plugging of the south road ditch of 390th Street SW, and 2) overtopping of 190th Avenue SW. As part of the establishment of Lateral 2, modifications to 390th Street SW and 190th Avenue SW are proposed. 390th Street SW will be lowered by approximately 0-2 feet, beginning approximately 80 feet west of NE corner of Section 36, Russia Township, and moving to the west for approximately 700 linear feet. This corridor represents a high point along 390th Street SW and is partially the cause of snow buildup in the easting south road ditch of 390th Street SW. 190th Avenue SW will also be modified beginning at the NE corner of Section 36, Russia Township, and progressing south for approximately 1,150 linear feet. A sag point in the existing road will be raised approximately 0-2 feet to reduce future overtopping. The culvert through 190th Avenue SW that is proposed as part of the establishment of Lateral 2 has been sized accounting for the increased road elevation.

- e. Right-of-way and Easements: Herrmann summarized the required right of way and easements. Herrmann explained that the existing right-of-way represents township road right-of-way and the existing Polk County Ditch 80 right-of-way. The additional right-of-way is the additional land rights required for the proposed channel side slopes and 1-rod buffer. The spoil easement is the temporary easement that is needed for construction. Subtotals for the Improvement, Lateral 1, and Lateral 2 that were presented are listed below.

Ditch Segment	Quarter	Section	Township	Existing Right-of-Way Offset (ft)	Existing Right-of-Way (Acres)	Additional Right-of-Way (ft)	Additional Right-of-Way (Acres)	Spoil Easement (ft)	Spoil Easement (Acres)
Main	NE	30	Onstad	16.5	0.820	37.5	1.865	100.0	4.975
Main	SE	30	Onstad	16.5	0.820	37.5	1.864	100.0	4.970
Main	NW	30	Onstad	16.5	0.908	37.5	2.062	100.0	5.496
Main	SW	30	Onstad	16.5	0.908	37.5	2.064	100.0	5.507
Main	NE	25	Russia	16.5	0.990	38.5	2.311	100.0	6.003
Main	SE	25	Russia	16.5	0.990	38.5	2.310	100.0	6.001
Main	NW	25	Russia	16.5	0.993	38.5	2.316	100.0	6.017
Main	SW	25	Russia	16.5	0.993	38.5	2.316	100.0	5.843
Main	NE	26	Russia	16.5	0.985	49.5	2.956	100.0	5.973
Main	SE	26	Russia	16.5	0.985	49.5	2.956	100.0	5.762
Main	NW	26	Russia	16.5	0.967	49.5	2.903	100.0	5.865
Main	SW	26	Russia	16.5	0.967	49.5	2.902	100.0	5.862
Main	NE	27	Russia	16.5	0.960	48.5	2.821	120.0	6.978
Main	SE	27	Russia	16.5	0.960	65.5	3.810	120.0	6.982
Main	NW	27	Russia	16.5	0.182	48.5	0.535	120.0	1.322
Main	SW	27	Russia	16.5	0.182	65.5	0.722	120.0	1.322
Lateral 1	SE	26	Russia	0.0	0.000	90.0	5.283	100.0	5.639
Lateral 1	SW	26	Russia	0.0	0.000	0.0	0.000	100.0	5.640
Lateral 2	SW	25	Russia	33.0	1.944	75.0	4.418	100.0	5.661
Lateral 2	SE	36	Russia	33.0	1.977	79.0	4.734	100.0	5.992
Lateral 2	SW	36	Russia	33.0	1.977	79.0	4.734	100.0	5.992
Improvement Subtotal					13.611		36.713		84.876
Lateral 1 Subtotal					0.000		5.283		11.280
Lateral 2 Subtotal					5.899		13.886		17.645
TOTALS					19.510		55.881		113.801

f. Preliminary Cost Estimate: Herrmann reviewed the combined preliminary cost estimate for the proposed Improvement, Lateral 1, and Lateral 2. Total estimated construction costs are estimated at \$846,169, which includes a 15% contingency. Total estimated non-construction costs are \$353,200, which includes land rights, permitting, engineering, legal, and administrative costs. Wilkens indicated that this is not a final cost, just an estimate. He explained that the land rights are typically assigned during the Viewing process, which will be completed prior to the Final Hearing. Herrmann also explained that the construction cost is estimated using recent bid prices and can vary at the time of bidding.

The following itemized cost estimate was presented at the Preliminary Hearing.

No.	Item	Unit	Quantity	Unit Price	Total Price
1	Common Excavation (Ditch)	CY	100,000	\$ 3.20	\$ 320,000.00
2	Common Excavation (390th Street SW)	CY	500	\$ 10.00	\$ 5,000.00
3	Road Embankment (190th Avenue SW)	CY	1,100	\$ 10.00	\$ 11,000.00
4	Seeding & Mulching	AC	67	\$ 750.00	\$ 50,250.00
5	24" CMP	LF	1,040	\$ 40.00	\$ 41,600.00
6	36" CMP	LF	156	\$ 80.00	\$ 12,480.00
7	64" x 43" CMPA	LF	52	\$ 225.00	\$ 11,700.00
8	71" x 47" CMPA	LF	154	\$ 275.00	\$ 42,350.00
9	77" x 52" CMPA	LF	70	\$ 300.00	\$ 21,000.00
10	72" RCP	LF	72	\$ 400.00	\$ 28,800.00
11	24" Steel Flapgate	EA	26	\$ 550.00	\$ 14,300.00
12	Remove Pipe All Types and Sizes	LF	376	\$ 10.00	\$ 3,760.00
13	Riprap MN Class III	CY	1,950	\$ 75.00	\$ 146,250.00
14	Salvage or Replace Aggregate Base Course	SY	4,103	\$ 3.00	\$ 12,309.00
15	Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
16	Erosion Control	LS	1	\$ 10,000.00	\$ 10,000.00
Construction Subtotal					\$ 735,799.00
Construction Contingencies (15%)					\$ 110,370.00
Total Construction Cost					\$ 846,169.00
Right-of-Way Aquisition (Permanent Easement; 56 Acres; Est. \$4000/Acre)					\$ 224,000.00
Construction Access (Temporary Easement; 114 Acres; Est. \$300/Acre)					\$ 34,200.00
Permitting					\$ 10,000.00
Engineering (Design, Field Survey, Construction Staking, Construction Administration)					\$ 80,000.00
Legal & Administrative					\$ 5,000.00
Non-Construction Cost					\$ 353,200.00
Total Estimated Project Cost					\$1,199,369.00

- g. Other Alternatives Evaluated: Herrmann briefly reviewed previous alternatives that were evaluated, but not selected for additional review. These alternatives are listed below:
- Alternative 1: Do Nothing: Determined unacceptable to allow for continued inundation and erosion as a result of not taking action
 - Alternative 2: Ditch 80 Improvements and Construct Lateral 1: This alternative did not fully address the problems. Specifically, it did not provide adequate access to Ditch 80
 - Alternative 3A: Ditch 80 Improvements and Construct Laterals 1 & 2: This alternative did not fully address the problems. Specifically, it did not address limited capacity, road overtopping, and breakout flows in Section 36, Russia Township.
 - Alternative 3B: Ditch 80 Improvements and Construct Laterals 1 & 2 (Expanded): PREFERRED
This alternative sufficiently meets area problems and is recommended to carry forward.
 - Alternative 4: Ditch 80 Improvements and Construct Laterals 1, 2, & 3: This alternative sufficiently meets area problems, however was determined to be cost prohibitive.
- h. Improvement Outlet Adequacy: Herrmann explained outlet adequacy for the Polk County Ditch 80 Improvement. The proposed Improvement outlets into the SHRWD Project 17 system near the center of Section 27, Russia Township. Project 17 has a design capacity of a 25-year, 24-hour rainfall event, as indicated in the Project 17 Engineer's Report. The proposed Improvements to Polk County Ditch 80 have a design capacity of a 10-year, 24-hour rainfall event. Because the design event for Polk County

Ditch 80 Improvement is less than SHRWD Project 17, the outlet is hydraulically adequate. Riprap will be used at the outlet of the proposed improvements to minimize erosion.

- i. Laterals Outlet Adequacy: Herrmann next reviewed the outlet adequacy of the proposed Laterals 1 and 2, which outlet into Polk County Ditch 80. Laterals 1 and 2 are sized for a 10-year, 24-hour rainfall event. The proposed Polk County Ditch 80 Improvement is sized for a 10-year, 24-hour rainfall event. Because both the proposed Improvements and Laterals are sized for the same event, Polk County Ditch 80 is considered a hydraulically adequate outlet if the proposed Improvements are completed. Riprap will be used at the outlet of both Laterals to minimize erosion.
- j. Alternative Measures: Herrmann reviewed other alternative measures that were reviewed, pursuant with MN Statute 103E.015. This required consideration of the alternative measures listed below:

- Conserve, allocate, and use drainage waters for agriculture, stream flow augmentation, or other beneficial uses;
- Reduce downstream peak flows and flooding;
- Provide adequate drainage system capacity;
- Reduce erosion and sedimentation;
- Protect or improve water quality;
- The present and anticipated land use within the drainage project or system

Many of these alternative measures rely on voluntary landowner enrollment, and it is considered unlikely that these alternatives would be pursued on a voluntary basis.

The project will incorporate several alternative measures including buffer strips, side inlet pipes, and permanent erosion control that address adopted water management plans.

- k. Environmental Concerns: Herrmann presented the following environmental concerns:
 - WETLANDS:
 - Calcareous Fen is located in the Chicog State Wildlife Management Area adjacent to, and outside of, the project drainage area
 - The proposed Improvements and Laterals does not divert drainage area away from the Calcareous Fen, thus no impacts are anticipated
 - USFWS National Wetlands Inventory indicates potential wetlands within the drainage area.
 - WATER QUALITY:
 - The proposed project (Improvement and Laterals) will require a Stormwater Pollution Prevention Plan (SWPPP) to mitigate water quality impacts during construction
 - The Improvement and Laterals are anticipated to result in increased water quality through the use of buffer strips, in channel grade stabilization, and side inlet culverts
 - FISH AND WILDLIFE RESOURCES:
 - The project does not include the channelization of currently natural areas, riparian areas, or lakes, thus no impacts are anticipated.
 - LAND USE:
 - The area is currently farmed and is anticipated to be farmed after the Improvements and Laterals are constructed.
- l. External Funding and Technical Assistance: Herrmann noted that sources of external funding for the proposed Improvements and establishment of Laterals were considered. These considerations resulted in the SHRWD successfully securing a MN Clean Water Fund to assist with the installation costs of side inlet culverts.

- m. Engineer's Opinion on Feasibility for the Improvement to Polk County Ditch 80: The opinion of the Engineer is that the Improvements are feasible, practical, and necessary, and is recommended to proceed.
- n. Engineer's Opinion on Feasibility of the Establishment of Laterals 1 and 2: The opinion of the Engineer is that Lateral 1 and Lateral 2 are feasible, practical, and necessary, and is recommended to proceed.

6. **Agency Comments:** It was noted that agency comments that provide general recommendations were made public. Wilkens read the agency comments to the audience from MN Department of Natural Resources and MN Board of Water and Soil Resources.

7. Audience Q & A:

Q. Elliot Solheim: Can you explain the difference between 10 year rainfall vs. 25 year rainfall?

A. Herrmann explained that the 10-year rainfall is approximately 3.75 inches rainfall over 24-hours. The 25-year rainfall is approximately 4.71 inches of rainfall over 24-hours.

Q. Elliot Solheim: Have you looked at any state or federal dollars for the riprap drop structures?

A. Herrmann stated that the SHRWD has previously tried to secure funding through the state of MN to assist with installation costs of grade stabilization structures in 103E drainage systems with no success. Funding sources available through MN are more focused on treatment of runoff before it enters the ditch. Herrmann stated that they continue to look at these things and the district is vigilant at applying for grant dollars.

Q. Paul Engelstad: Where does the grant dollars come from for the side inlet pipes?

A: The Clean Water Fund is part of the sales tax and the funding is distributed through the Board of Soil and Water Resources.

Q. Kyle Stromstad: Stromstad offered several rocks for the project.

A: Herrmann stated that the contractor has specific specifications for rocks.

Q. Elliot Solheim: What is the timeline?

A: Herrmann is thinking construction in the fall, and is hoping for a mid summer bid. Herrmann stated that he can stake out the ROW easement line so the landowner/renter can decided what to plant to avoid crop damage.

Q. Brain Gullekson: Feels lateral 1 is over built for the amount of drainage.

A: Herrmann stated that it is verified because of the back water off of the main line ditch.

Q. Brent Gullekson: How is lateral 1 shaped into ditch 80?

A: It is just open into ditch 80, right at the bottom. There is some rock armor to avoid erosion.

Q. Paul Engelstad: Is the spoil height at the same height for lateral 1 as it enters ditch 80? How does it push open the spring. Engelstad has seen this on Project # 17 (where the water breaks out and gave overload).

A: Spoil heights will be adjusted during construction. This will be drastically different from what you are used to. This will be a much deeper ditch and you won't see much snow plug as you have seen in the past. Herrmann will review the spoil height and feels will have enough material. Wilkens acknowledged we have learned a lot from prior projects and agreed this is an area to pay close attention to.

Q: Brian Gullekson: South of lateral 2, in the corner has the culvert changed?

A: Herrmann stated that there is a culvert being put in and everything is set to accommodate future grading. Some of that water can be taken to the North.

Q: Mike Skaug: Is the permanent easement and the temporary easement equal?

A: Herrmann will present a table per quarter so that landowners can guess what the ROW will be so the landowners can estimate what portions should not be seeded. Herrmann can GPS the line and give exact footage from the center line of the existing ditch.

Public comment was closed and opened up to board discussion.

8. **Proceeding:** Wilkens explained that the board needs to review the agency reports and then decide whether or not to proceed going forward. If it is determined feasible and necessary with the agency modifications, where the benefits outweigh the adverse affects. If the project is ordered in, viewers will be appointed and the engineers will create a final engineers report.
9. **Adjournment/Recess:** A **Motion** was made by Manager Bartz to recess until May 1, 2018 at 9:00 AM at which time the board will go through all the legal requirements and make a decision to move forward if appropriate, **Seconded** by Manager Vesledahl, **Carried**. The meeting was recessed at 9:17 AM.

Polk County Ditch 80
Improvement
&
Establishment of Laterals 1 and 2

Preliminary Hearing

April 23, 2018
Sand Hill River Watershed District
Fertile, MN

Agenda

- Examine Petition to Determine of Legal (Improvement & Laterals)
- Opening Comments and Review of Problems and Solutions
- Review of Preliminary Engineer's Report
- Review of MN Dept. of Natural Resources Commissioner's Findings
- Review of MN Board of Water and Soil Resources Findings
- Open Question/Comment Period
- Board Discussion

Review of Petition

IMPROVEMENT: (MN Statute 103E.215)

- The Petition is signed by:
 - The owners of at least 26 percent of the property area that the proposed improvement passes over.
- The Petition meets all of the following:
 - Designate the drainage system proposed to be improved by number or another description that identifies the drainage system;
 - State that the drainage system has insufficient capacity or needs enlarging or extending to furnish sufficient capacity or a better outlet;
 - Describe the starting point, general course, and terminus of any extension;
 - Describe the improvement, including the names and addresses of owners of the 40-acre tracts or government lots and property that the improvement passes over;
 - State that the proposed improvement will be of public utility and promote the public health; and
 - Contain an agreement by the petitioners that they will pay all costs and expenses that may be incurred if the improvement proceedings are dismissed.
- A bond has been furnished by the petitioners

Review of Petition

LATERALS: (MN Statute 103E.225)

- The Petition is signed by:
 - The owners of at least 26 percent of the property area that the proposed improvement passes over.
- The Petition meets all of the following:
 - Describe in general terms the starting point, general course, and terminus of the proposed lateral;
 - Describe the property traversed by the lateral including the names and addresses of the property owners from records in the county assessor's office;
 - State the necessity to construct the lateral;
 - State that, if constructed, the lateral will be of public benefit and utility and promote the public health;
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Opening Comments

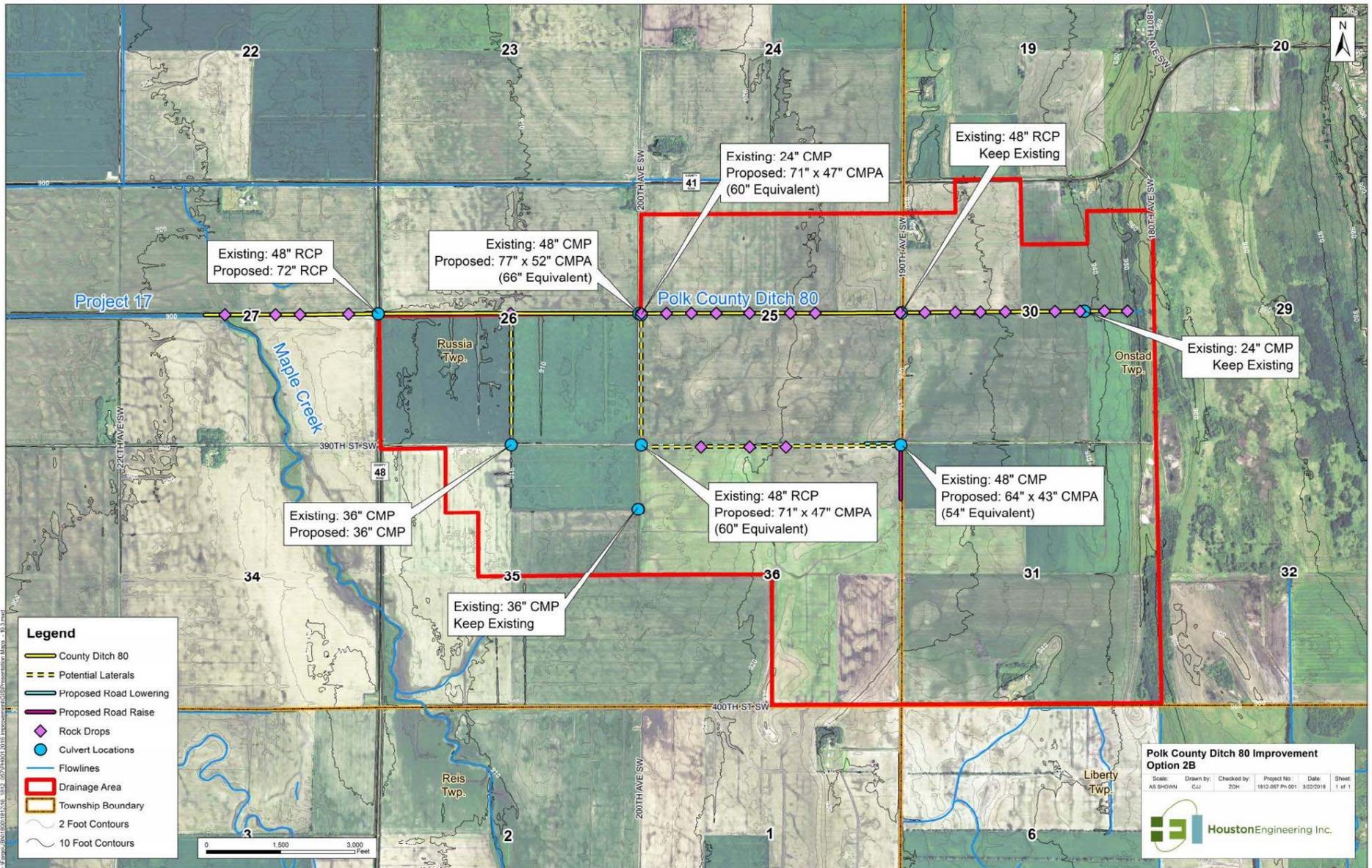
Problems

- The existing Polk County Ditch 80 has insufficient capacity and needs enlargement and/or extending (through laterals) to furnish sufficient capacity to control flooding and erosion.
- Steep channel gradeline and sideslopes result in channel erosion.
- Inability for contributing watershed to access the ditch channel. Approximately 58% (1,600 acres) of the total drainage area currently has no access to Ditch 80 until the $\frac{1}{4}$ line of Section 26, Russia Township.
- Road overtopping and overland flow in Section 36, Russia Township causes erosion and overland flooding.

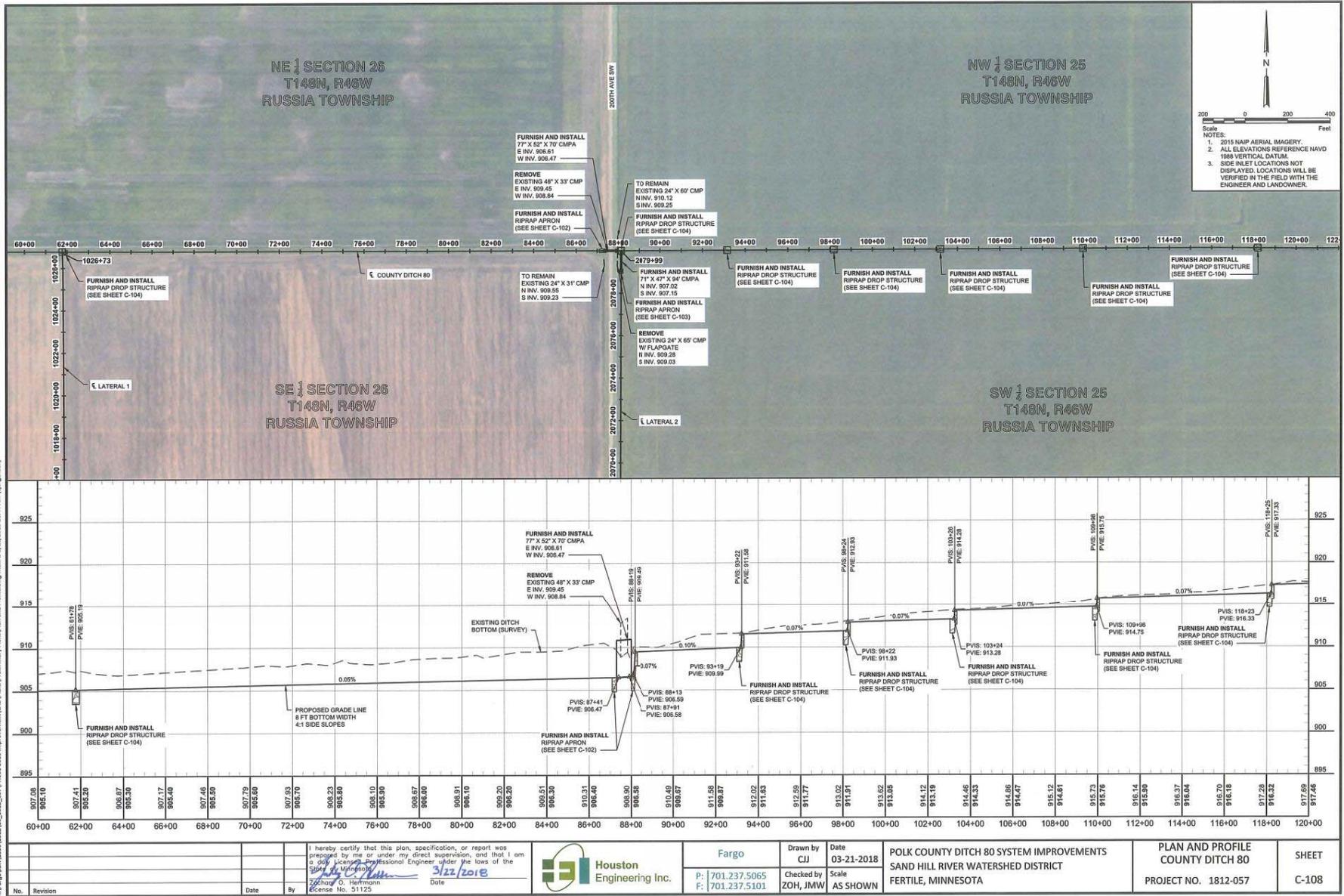
Solutions

- Improve Polk County Ditch 80:
 - Flatten sideslopes
 - Reduce channel gradient by use of rock drop structures
 - Provide sufficient depth for Lateral outlets
- Establish Laterals to provide hydraulic capacity for draining lands to access Ditch 80

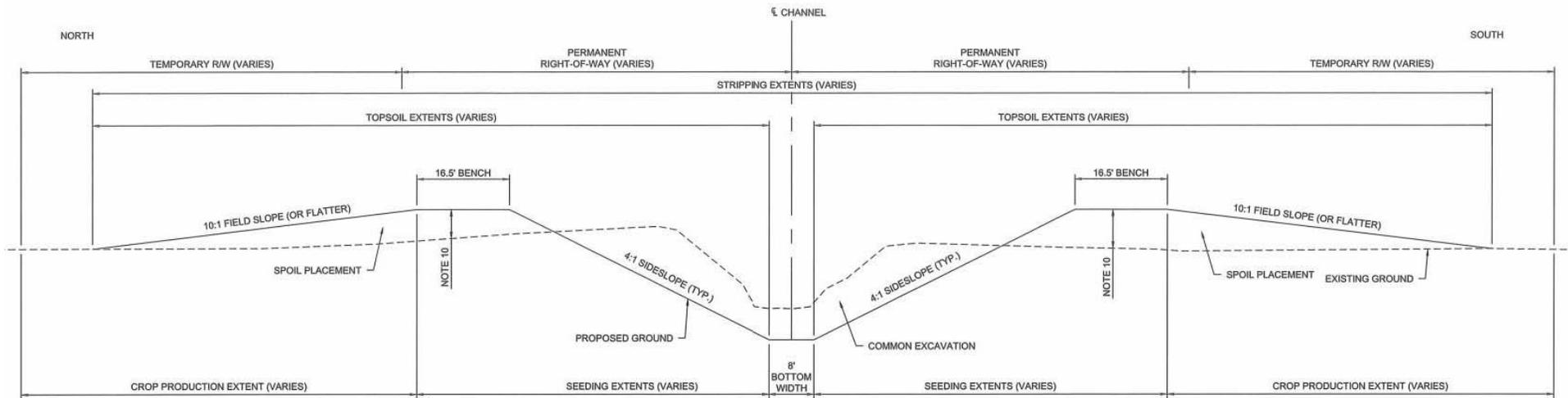
Drainage Area Map



Ditch 80 Improvement

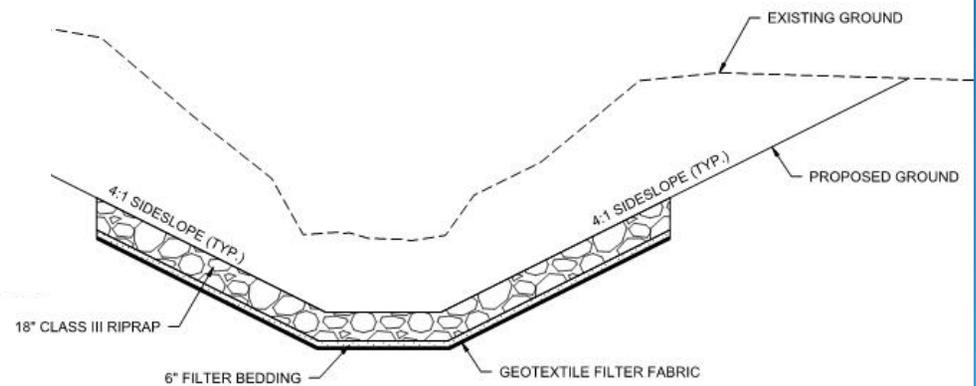
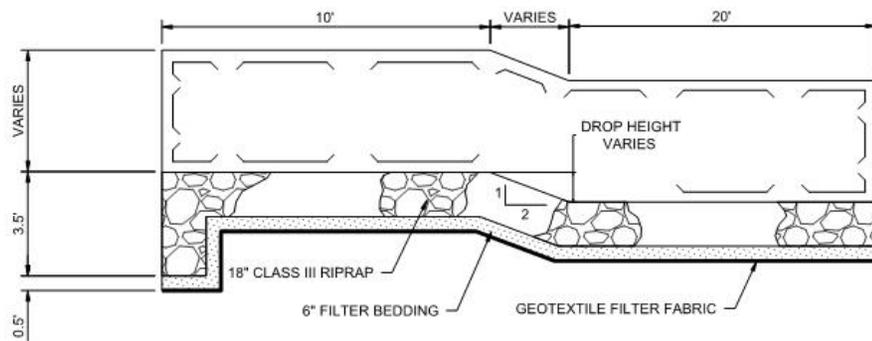
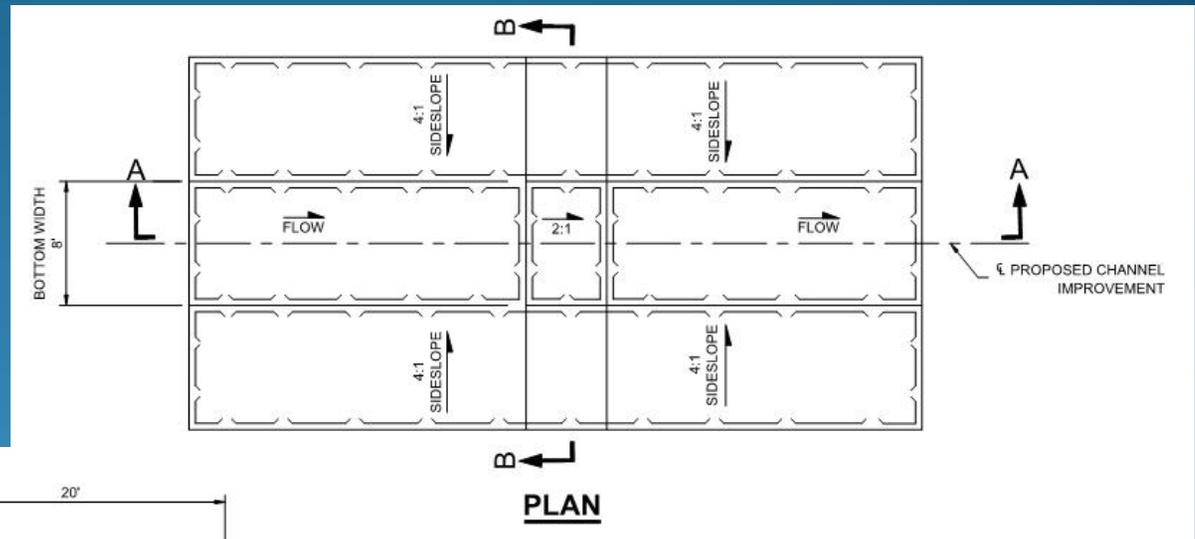


Ditch 80 Improvement Typical Section

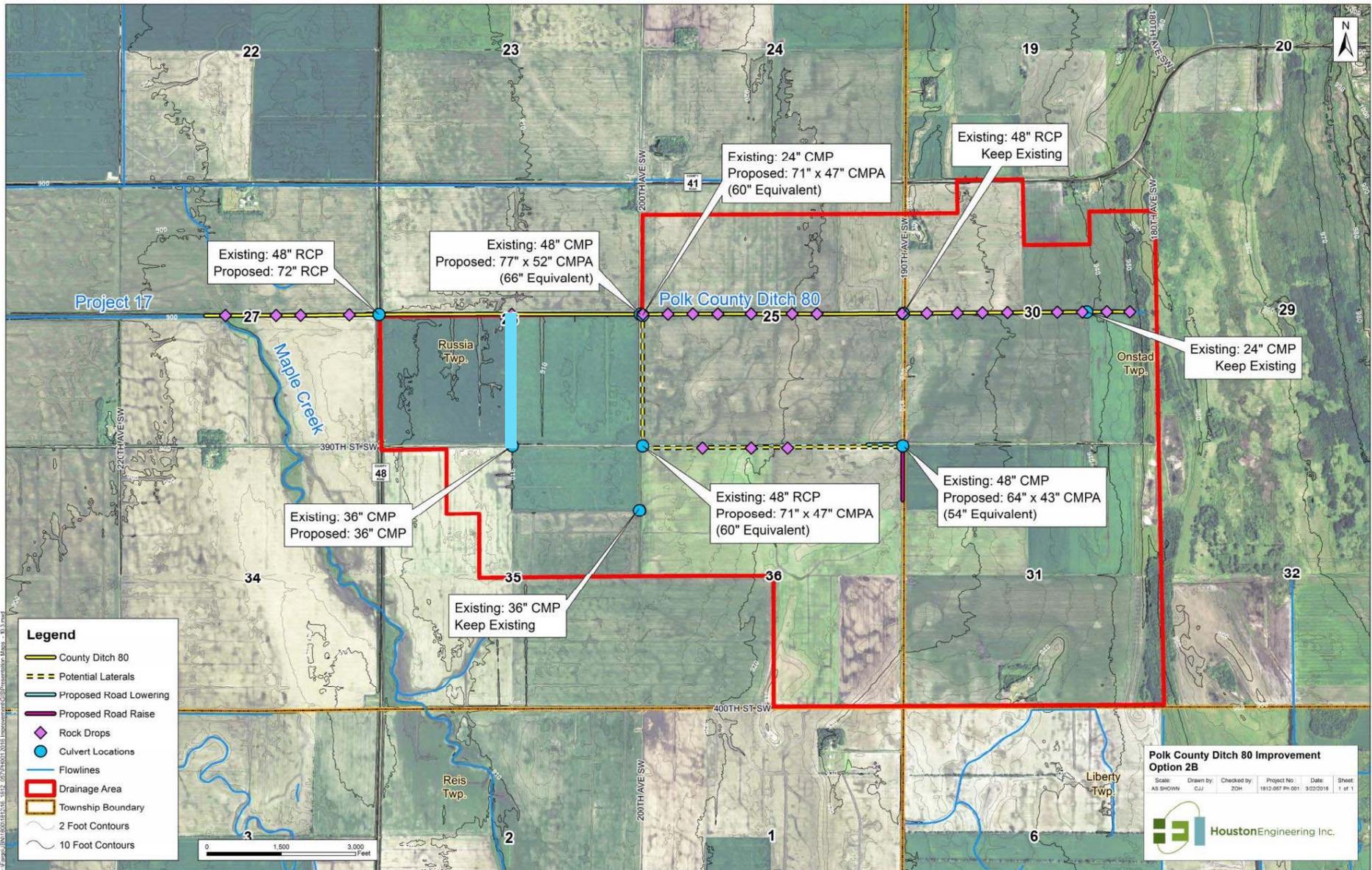


COUNTY DITCH 80 TYPICAL SECTION (COUNTY DITCH 80 OUTLET TO STA 186+52)
NOT TO SCALE

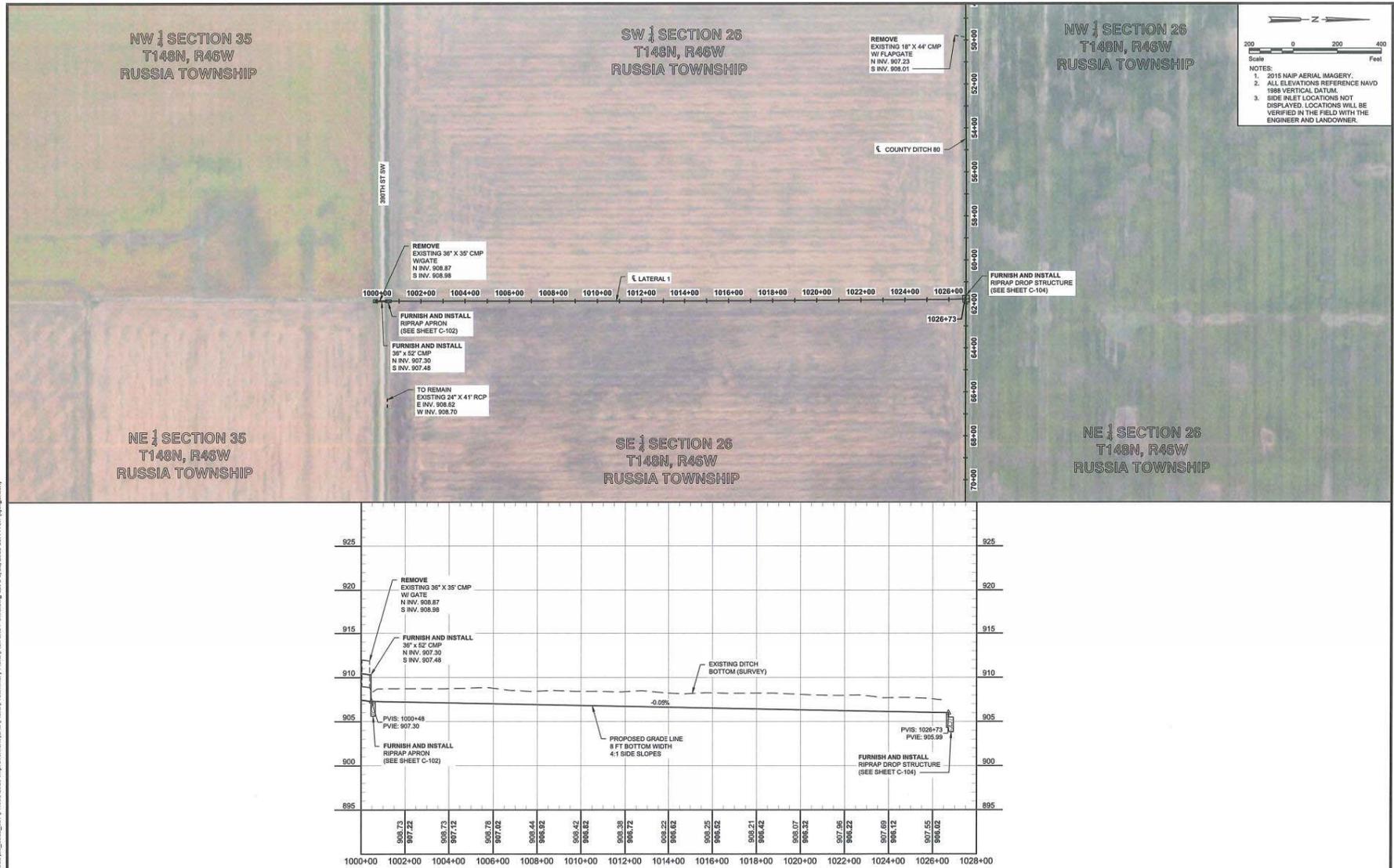
Ditch 80 Improvement Rock Drops



Establishment of Lateral 1



Establishment of Lateral 1



Scale: 1" = 40'

Notes:

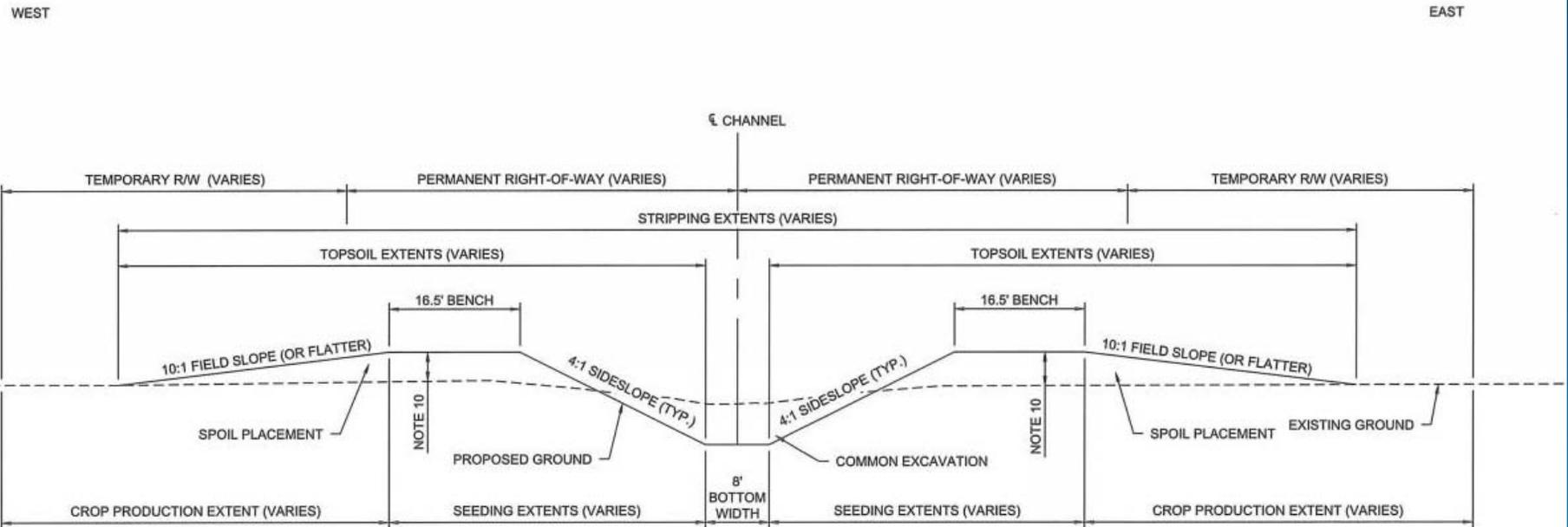
- 2015 NAIP AERIAL IMAGERY.
- ALL ELEVATIONS REFERENCE NAVD 1988 VERTICAL DATUM.
- SIDE INLET LOCATIONS NOT DISPLAYED. LOCATIONS WILL BE VERIFIED IN THE FIELD WITH THE ENGINEER AND LANDOWNER.

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No.	Revision	Date	By	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. Signature: <i>Richard D. Herrmann</i> Date: <i>3/22/2018</i> License No. 51125		Fargo P: 701.237.5065 F: 701.237.5101	Drawn by CJJ Checked by ZOH, JMW Date 03-21-2018 Scale AS SHOWN	POLK COUNTY DITCH 80 SYSTEM IMPROVEMENTS SAND HILL RIVER WATERSHED DISTRICT FERTILE, MINNESOTA	PLAN AND PROFILE LATERAL 1 PROJECT NO. 1812-057	SHEET C-111

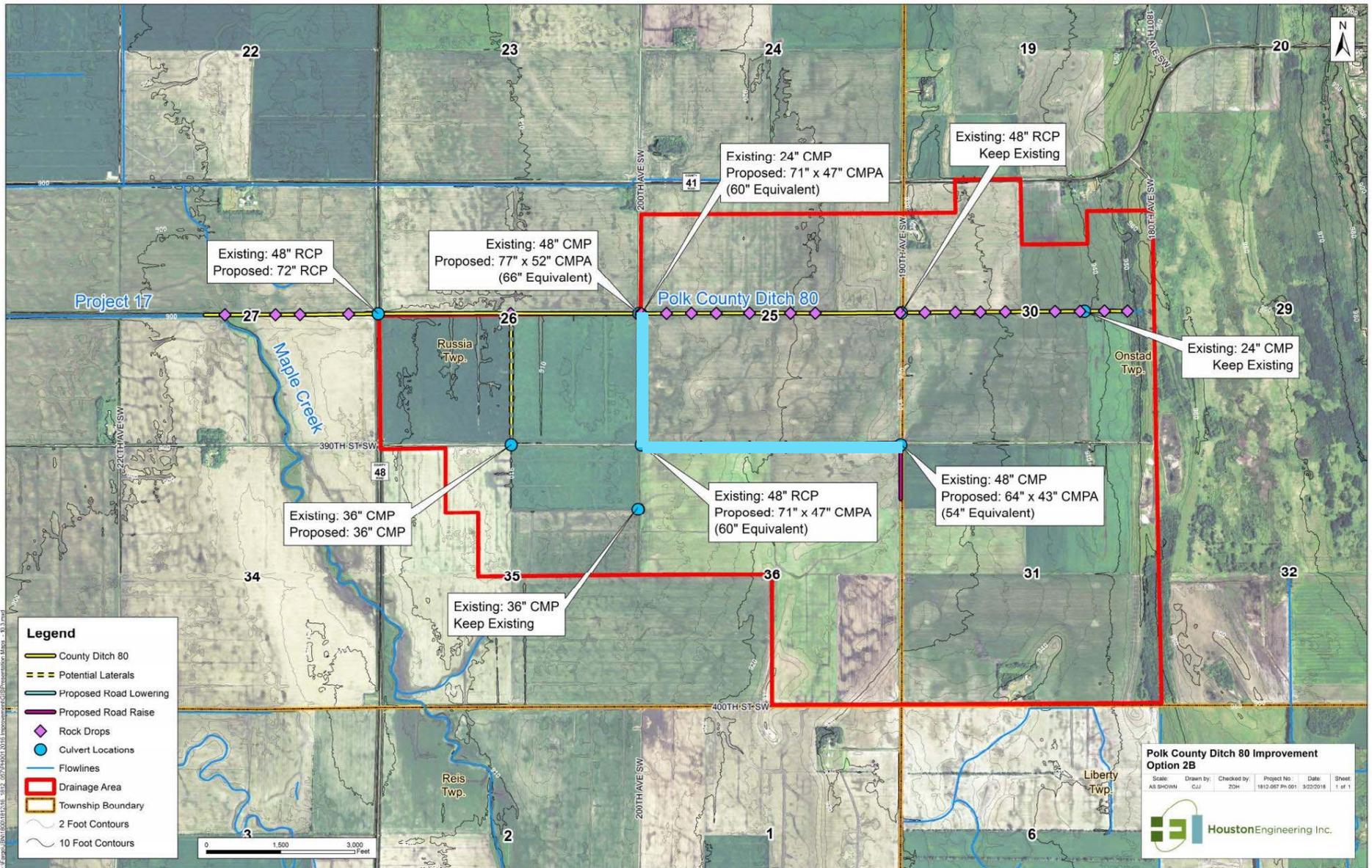
Establishment of Lateral 1

Typical Sections

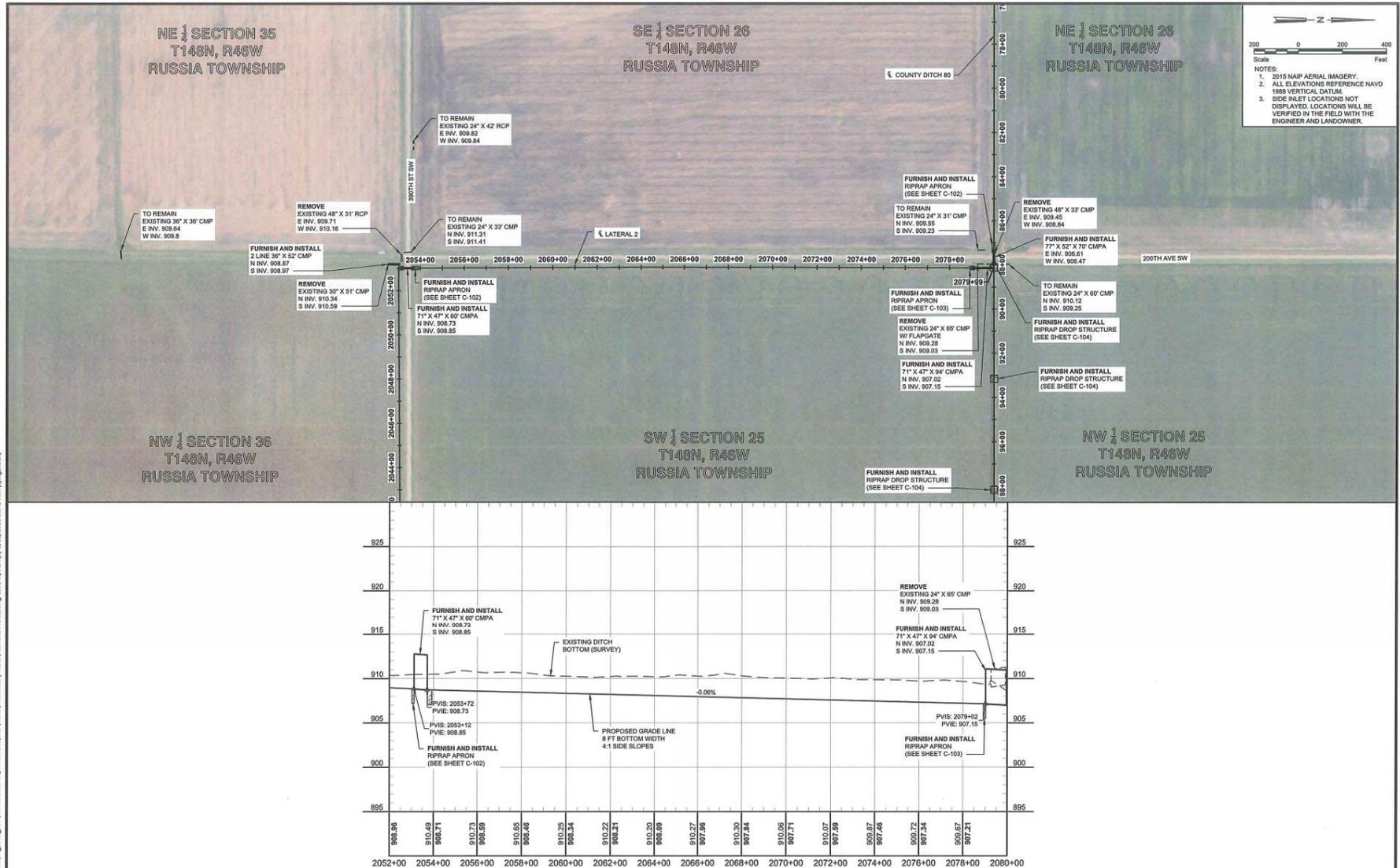


LATERAL 1 TYPICAL SECTION (STA 1000+45 TO LATERAL 1 OUTLET)
NOT TO SCALE

Establishment of Lateral 2



Establishment of Lateral 2



Scale: 1" = 40'

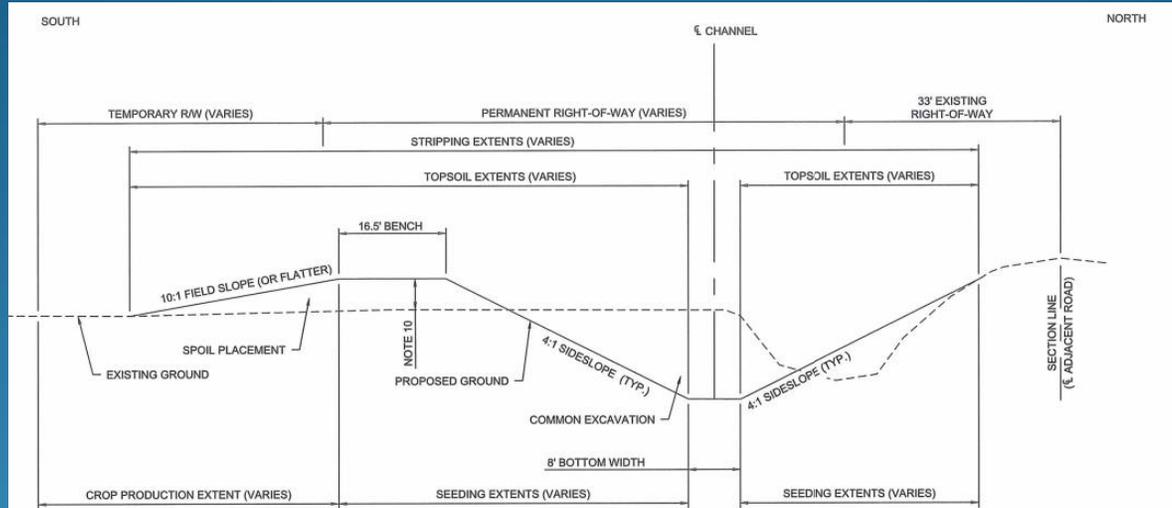
NOTES:
 1. 2015 NAIP AERIAL IMAGERY.
 2. ALL ELEVATIONS REFERENCE NAVD 1988 VERTICAL DATUM.
 3. SIDE INLET LOCATIONS NOT DISPLAYED. LOCATIONS WILL BE VERIFIED IN THE FIELD WITH THE ENGINEER AND LANDOWNER.

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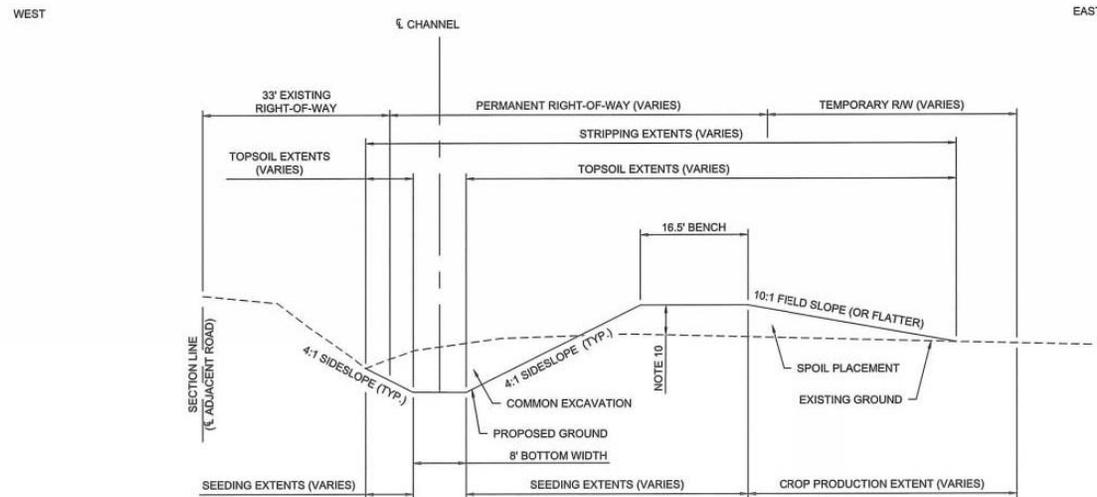
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota. <i>Richard D. Hermon</i> Richard D. Hermon License No. 51125		Fargo Houston Engineering Inc. P: 701.237.5065 F: 701.237.5101	Drawn by CJJ Checked by ZOH, JMW Date 03-21-2018 Scale AS SHOWN	POLK COUNTY DITCH 80 SYSTEM IMPROVEMENTS SAND HILL RIVER WATERSHED DISTRICT FERTILE, MINNESOTA	PLAN AND PROFILE LATERAL 2 PROJECT NO. 1812-057	SHEET C-112
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Establishment of Lateral 2

Typical Sections

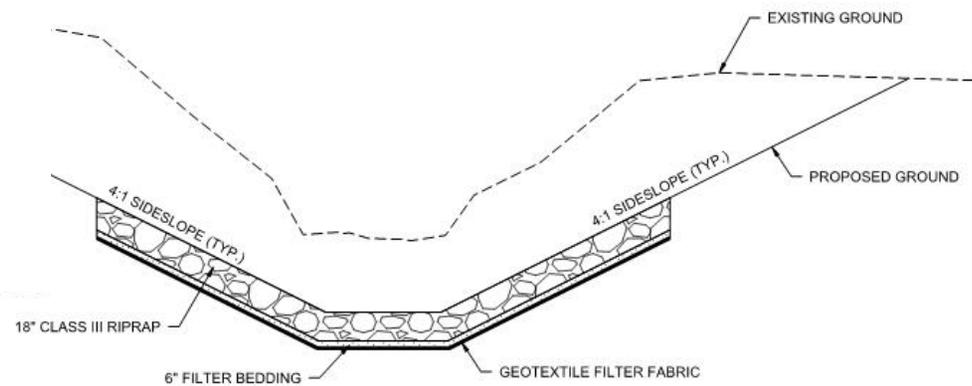
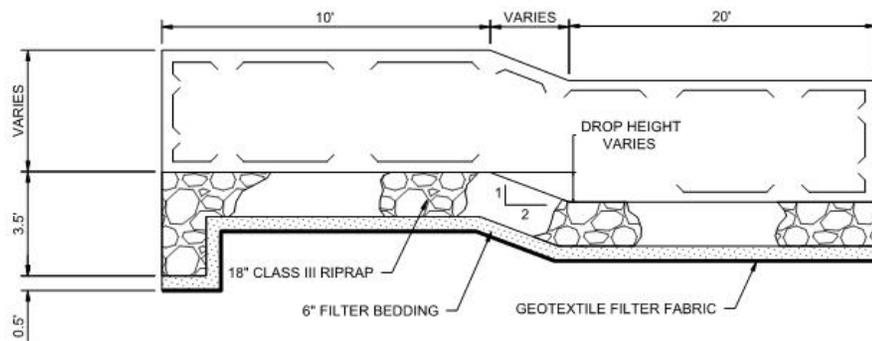
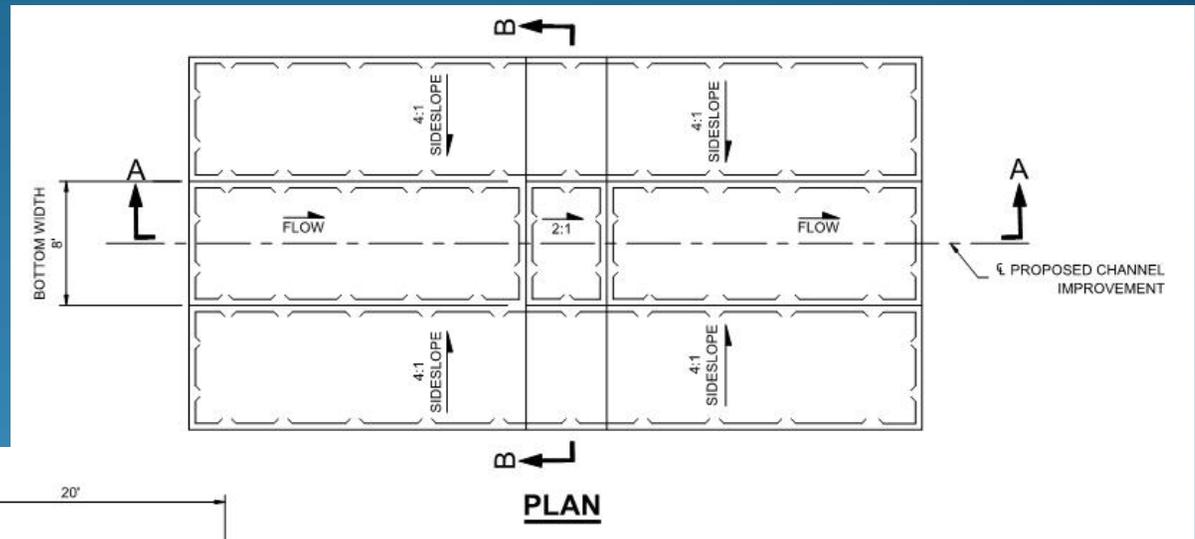


LATERAL 2 TYPICAL SECTION (STA 2000+85 TO STA 2053+12)
NOT TO SCALE

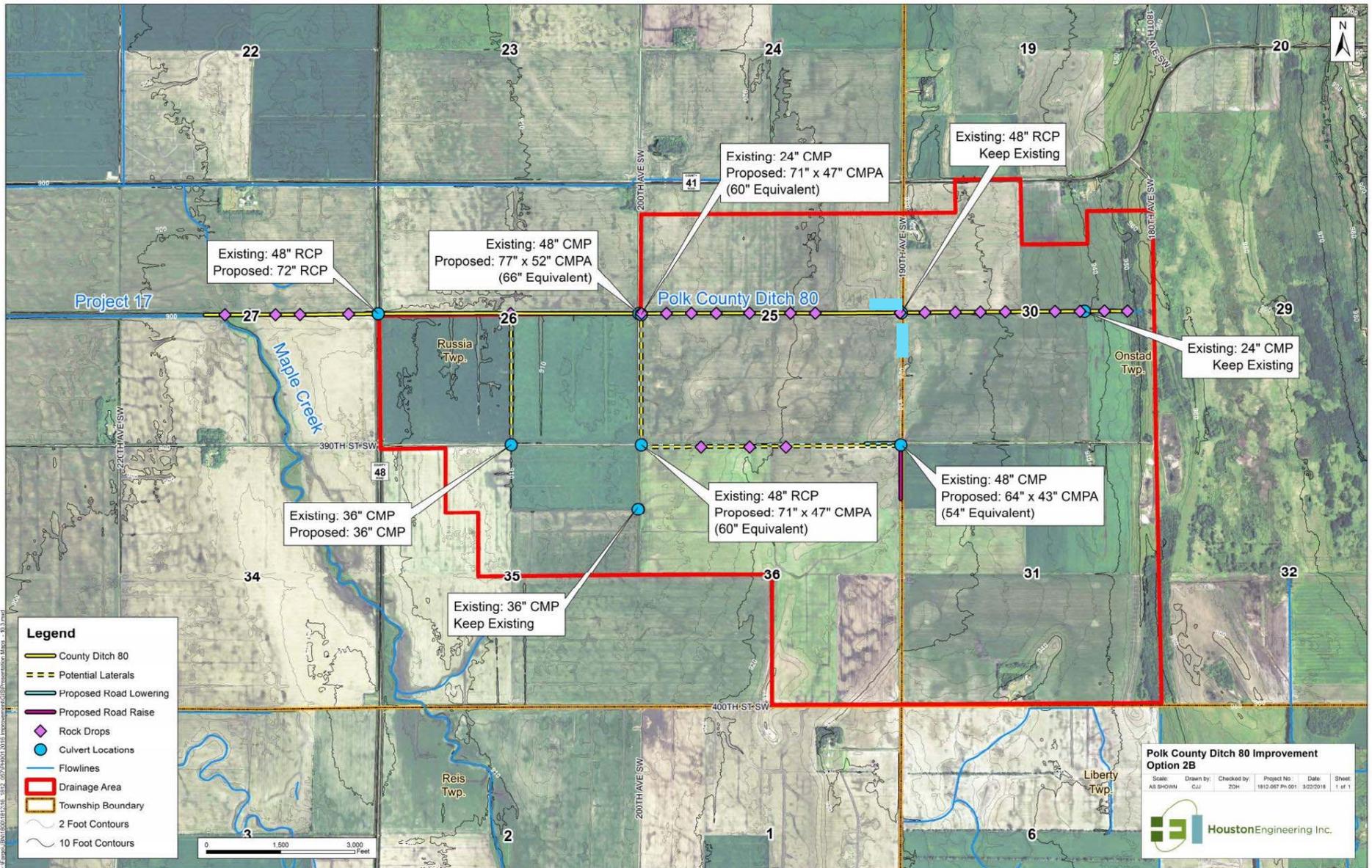


LATERAL 2 TYPICAL SECTION (STA 2053+72 TO STA 2079+02)
NOT TO SCALE

Establishment of Lateral 2 Rock Drops



Establishment of Lateral 2 - Road Changes



Right-of-Way and Easement

Ditch Segment	Quarter	Section	Township	Existing Right-of-Way Offset (ft)	Existing Right-of-Way (Acres)	Additional Right-of-Way (ft)	Additional Right-of-Way (Acres)	Spoil Easement (ft)	Spoil Easement (Acres)		
Main	NE	30	Onstad	16.5	0.820	37.5	1.865	100.0	4.975		
Main	SE	30	Onstad	16.5	0.820	37.5	1.864	100.0	4.970		
Main	NW	30	Onstad	16.5	0.908	37.5	2.062	100.0	5.496		
Main	SW	30	Onstad	16.5	0.908	37.5	2.064	100.0	5.507		
Main	NE	25	Russia	16.5	0.990	38.5	2.311	100.0	6.003		
Main	SE	25	Russia	16.5	0.990	38.5	2.310	100.0	6.001		
Main	NW	25	Russia	16.5	0.993	38.5	2.316	100.0	6.017		
Main	SW	25	Russia	16.5	0.993	38.5	2.316	100.0	5.843		
Main	NE	26	Russia	16.5	0.985	49.5	2.956	100.0	5.973		
Main	SE	26	Russia	16.5	0.985	49.5	2.956	100.0	5.762		
Main	NW	26	Russia	16.5	0.967	49.5	2.903	100.0	5.865		
Main	SW	26	Russia	16.5	0.967	49.5	2.902	100.0	5.862		
Main	NE	27	Russia	16.5	0.960	48.5	2.821	120.0	6.978		
Main	SE	27	Russia	16.5	0.960	65.5	3.810	120.0	6.982		
Main	NW	27	Russia	16.5	0.182	48.5	0.535	120.0	1.322		
Main	SW	27	Russia	16.5	0.182	65.5	0.722	120.0	1.322		
Lateral 1	SE	26	Russia	0.0	0.000	90.0	5.283	100.0	5.639		
Lateral 1	SW	26	Russia	0.0	0.000	0.0	0.000	100.0	5.640		
Lateral 2	SW	25	Russia	33.0	1.944	75.0	4.418	100.0	5.661		
Lateral 2	SE	36	Russia	33.0	1.977	79.0	4.734	100.0	5.992		
Lateral 2	SW	36	Russia	33.0	1.977	79.0	4.734	100.0	5.992		
Improvement Subtotal							13.611		36.713		84.876
Lateral 1 Subtotal							0.000		5.283		11.280
Lateral 2 Subtotal							5.899		13.886		17.645
TOTALS							19.510		55.881		113.801

Preliminary Estimated Costs

No.	Item	Unit	Quantity	Unit Price	Total Price
1	Common Excavation (Ditch)	CY	100,000	\$ 3.20	\$ 320,000.00
2	Common Excavation (390th Street SW)	CY	500	\$ 10.00	\$ 5,000.00
3	Road Embankment (190th Avenue SW)	CY	1,100	\$ 10.00	\$ 11,000.00
4	Seeding & Mulching	AC	67	\$ 750.00	\$ 50,250.00
5	24" CMP	LF	1,040	\$ 40.00	\$ 41,600.00
6	36" CMP	LF	156	\$ 80.00	\$ 12,480.00
7	64" x 43" CMPA	LF	52	\$ 225.00	\$ 11,700.00
8	71" x 47" CMPA	LF	154	\$ 275.00	\$ 42,350.00
9	77" x 52" CMPA	LF	70	\$ 300.00	\$ 21,000.00
10	72" RCP	LF	72	\$ 400.00	\$ 28,800.00
11	24" Steel Flapgate	EA	26	\$ 550.00	\$ 14,300.00
12	Remove Pipe All Types and Sizes	LF	376	\$ 10.00	\$ 3,760.00
13	Riprap MN Class III	CY	1,950	\$ 75.00	\$ 146,250.00
14	Salvage or Replace Aggregate Base Course	SY	4,103	\$ 3.00	\$ 12,309.00
15	Traffic Control	LS	1	\$ 5,000.00	\$ 5,000.00
16	Erosion Control	LS	1	\$ 10,000.00	\$ 10,000.00
Construction Subtotal					\$ 735,799.00
Construction Contingencies (15%)					\$ 110,370.00
Total Construction Cost					\$ 846,169.00
Right-of-Way Aquisition (Permanent Easement; 56 Acres; Est. \$4000/Acre)					\$ 224,000.00
Construction Access (Temporary Easement; 114 Acres; Est. \$300/Acre)					\$ 34,200.00
Permitting					\$ 10,000.00
Engineering (Design, Field Survey, Construction Staking, Construction Administration)					\$ 80,000.00
Legal & Administrative					\$ 5,000.00
Non-Construction Cost					\$ 353,200.00
Total Estimated Project Cost					\$1,199,369.00

Alternatives Evaluated

- **Alternative 1: Do Nothing**: Determined unacceptable to allow for continued inundation and erosion as a result of not taking action
- **Alternative 2: Ditch 80 Improvements and Construct Lateral 1**: This alternative did not fully address the problems. Specifically, it did not provide adequate access to Ditch 80
- **Alternative 3A: Ditch 80 Improvements and Construct Laterals 1 & 2**: This alternative did not fully address the problems. Specifically, it did not address limited capacity, road overtopping, and breakout flows in Section 36, Russia Township.
- **Alternative 3B: Ditch 80 Improvements and Construct Laterals 1 & 2 (Expanded)**: **PREFERRED** This alternative sufficiently meets area problems and is recommended to carry forward.
- **Alternative 4: Ditch 80 Improvements and Construct Laterals 1, 2, & 3**: This alternative sufficiently meets area problems, however was determined to be cost prohibitive.

Outlet Adequacy

IMPROVEMENT

- Outlets into SHRWD Project 17
- Project 17 has a design capacity of a 25-year, 24-hour rainfall event
- The proposed improvements have a design capacity of a 10-year, 24-hour rainfall event
- Therefore, Project 17 provides an adequate hydraulic outlet for the proposed Improvements
- Riprap grade stabilization will be used to minimize erosion

LATERALS

- Laterals 1 and 2 outlet into the Polk County Ditch 80 Improvements
- Laterals 1 and 2 are sized for a 10-year, 24-hour rainfall event
- The Improvement to Ditch 80 is sized for a 10-year, 24-hour rainfall event
- The Improvement to Ditch 80 facilitates depth requirements for Laterals 1 and 2
- Therefore, the Improved Ditch 80 provides an adequate hydraulic outlet for Laterals 1 and 2

Alternative Measures

- **MN Statute 103E.015 requires consideration to alternative measures including:**
 - Conserve, allocate, and use drainage waters for agriculture, stream flow augmentation, or other beneficial uses;
 - Reduce downstream peak flows and flooding;
 - Provide adequate drainage system capacity;
 - Reduce erosion and sedimentation;
 - Protect or improve water quality;
 - The present and anticipated land use within the drainage project or system
- **Many of these alternative measures rely on voluntary landowner enrollment, and it is considered unlikely that these alternatives would be pursued on a voluntary basis.**
- **The project will incorporate several alternative measures including buffer strips, side inlet pipes, and permanent erosion control that address adopted water management plans.**

Environmental Concerns

WETLANDS:

- Calcareous Fen is located in the Chicog State Wildlife Management Area adjacent to, and outside of, the project drainage area
- The proposed Improvements and Laterals does not divert drainage area away from the Calcareous Fen, thus no impacts are anticipated
- USFWS National Wetlands Inventory indicates potential wetlands within the drainage area

WATER QUALITY:

- The proposed project (Improvement and Laterals) will require a Stormwater Pollution Prevention Plan (SWPPP) to mitigate water quality impacts during construction
- The Improvement and Laterals are anticipated to result in increased water quality through the use of buffer strips, in channel grade stabilization, and side inlet culverts

Environmental Concerns

FISH AND WILDLIFE RESOURCES:

- The project does not include the channelization of currently natural areas, riparian areas, or lakes, thus no impacts are anticipated.

LAND USE:

- The area is currently farmed, and is anticipated to be farmed after the Improvements and Laterals are constructed.

External Funding and Technical Assistance

MN Clean Water Fund Grant:

- The SHRWD has successfully secured a MN Clean Water Fund to assist with the installation costs of side inlet culverts.

Project Feasibility

IMPROVEMENT

- The opinion of the Engineer is that the Improvements are feasible, practical, and necessary, and is recommended to proceed.

LATERALS

- The opinion of the Engineer is that Lateral 1 and Lateral 2 are feasible, practical, and necessary, and is recommended to proceed.

Agency Comments

- MN Department of Natural Resources
 - Submit correspondence providing comments as part of the hearing record
 - Read Comments
- MN Board of Water and Soil Resources
 - Submit correspondence providing comments as part of the hearing record
 - Read Comments

OPEN COMMENT/QUESTION PERIOD

BOARD DISCUSSION