APPLICATION FOR CONDITIONAL USE PERMIT

TILLER CORPORATION

ZAVORAL MINING AND RECLAMATION PROJECT

CITY OF SCANDIA

Project History

- 2002: Began working on the Project
- 2002-2004: Approached Washington County, the land use authority at that time

  In 2004 Tiller was informed that the Township of Scandia was pursuing Incorporation

  Washington County asked Tiller to delay submittal of a permit application until Scandia Incorporated

Project History

- 2003 and 2004: Met with the Scandia Planning Commission on-site as part of the stockpile removal permit renewal. Discussed plans for submitting a mining application with PC at that time
- 2005: Scandia submitted their request to Incorporate
- October 2006: Order signed and effective

Project History Continued

- Nov. 2006: Met with PC and Twp Board to present plans to conduct a mining and reclamation project on the Zavoral site
- Nov 2006 : Established escrow with the City to review EAW
- August 2007 : City adopted their mining ordinance
  - Required existing mining operations apply for a permit within 90 days

Project History Continued

- May 2008 Scandia issued a CUP for Tiller's existing Scandia mining operation
- Tiller applied for an AOP for the existing Scandia mining operation
- November 8, 2008, while the City was considering the AOP, Tiller submitted an application for the Zavoral CUP.
- March 2009 Scandia adopted their current Comprehensive Plan
- November 2010 Scandia adopted their zoning map and ordinance that implement the Comp Plan.

Proposed Project

- 114 acre Site
- 64 Acres proposed to be mined and reclaimed
- 4 of the 64 acres reclamation only (St Croix River District or Scenic Easement Area)
- Of the 60 acres to be mined, 51 acres have been disturbed by previous mining

Past Mining Activity

- Mining Activity from Mid 1960's through the 1980's.
- Mining and processing including crushing, washing, asphalt production
- Left the site stabilized but un-reclaimed by todays reclamation standards.

Materials to be Produced

- Construction sand and gravel will be excavated as add rock and transported to other sites for processing or use in construction projects in the area

Jordan Sandstone

- The Jordan Sandstone forms the bedrock subcrop beneath the materials Tiller is proposing to remove
- The top of the Jordan Sandstone is below the deposit to be mined
- Minimum mining depth is 840 msl

Current un-reclaimed condition of Site

From Bing.com

Irregular topography
Stockpiles of material
No topsoil/sparse to no vegetation
Predominance of invasive species in areas where vegetation exists

From Bing.com

Environmental Review

- Preparation of an Environmental Assessment Worksheet is mandatory for a project proposing to mine over 40 acres.

- City ordered an Environmental Impact Statement for the 64 acre proposed mining area.

Mandatory threshold for an EIS is 160 acres

- Substantial changes to the project as a result of environmental review and response to citizens and the City's concerns.

Project Modifications as a result of Environmental Review

1. ORIGINAL PROPOSAL INCLUDED MINING AND PROCESSING; INCLUDING CRUSHING, SCREENING, WASHING , PRODUCT STOCKPILING AND RECLAMATION

- Crushing : **REMOVED** from Project to address concerns over noise and dust emissions and ambient air quality
- Screening: **REMOVED** from Project to address concerns over noise and dust emissions and ambinet air quality
- Washing: **REMOVED** from Project to eliminate need for high capacity well and water appropriations permit to address concerns over impacts to water levels in surrounding residential water supply wells and nearby groundwater dependent natural resources; wetlands, seeps and springs and creeks.
- Process Water Ponds: **REMOVED** from Project to eliminate process water ponding adjacent to the bluff and mitigated concerns of potential surface water quality impacts to nearby wetlands, creeks and the St. Croix River.
- Product Stockpiling: **REMOVED** for Project to address concerns over views and fugitive dust emissions and ambient air quality.

Project Modifications as a result of Environmental Review

2. REVISED RECLAMATION PHASING:

Reclamation Phasing was revised to address City and citizen concerns regarding the 4 acres of the Site located with the St. Croix River District and scenic easement area that were previously disturbed by mining.

Project Modifications as a result of Environmental Review

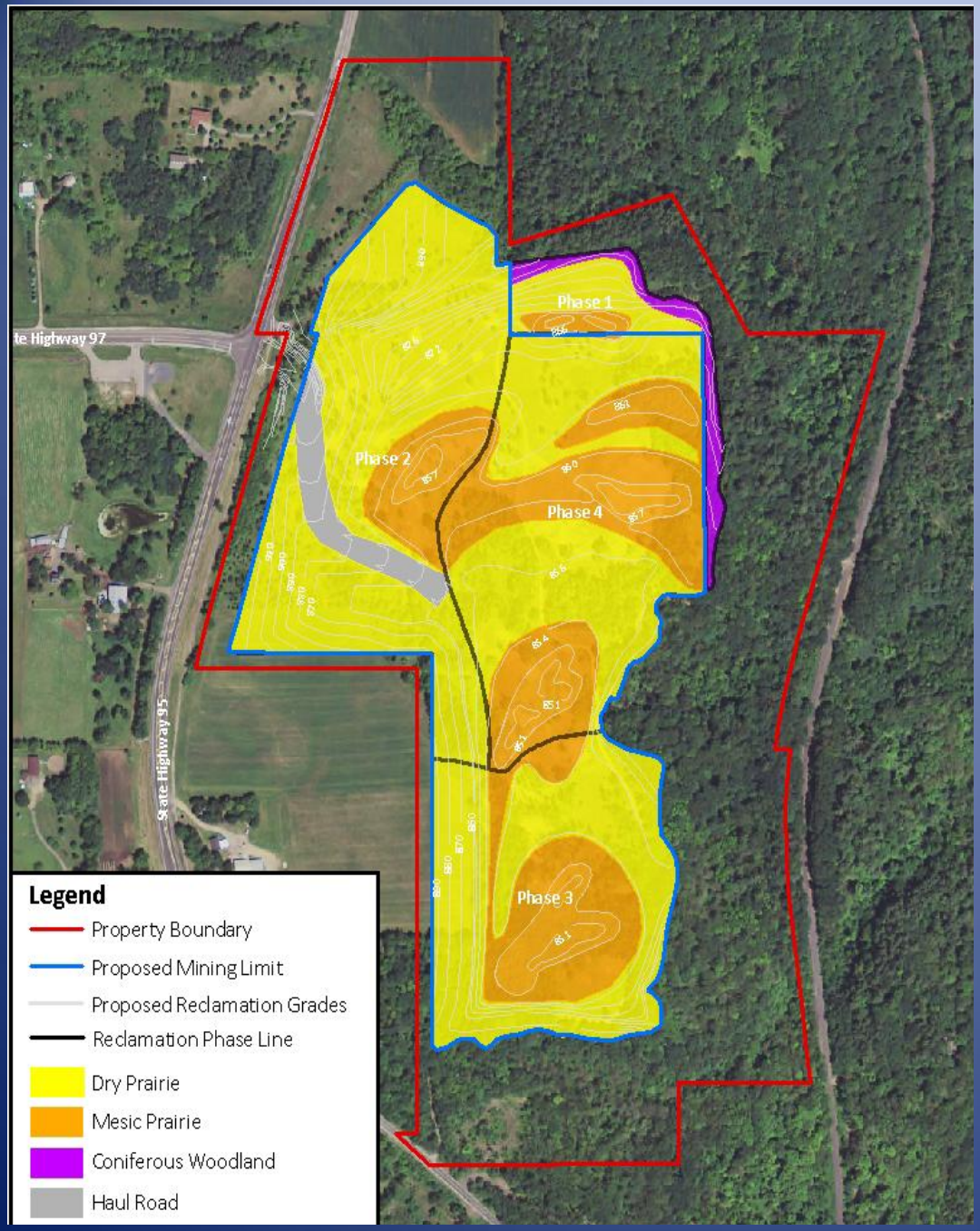
3. A Revised Reclamation Plan

Exceeds the City of Scandia's standards

Developed in response to the City and citizen concerns over the proximity to the St. Croix River

RECLAMATION GOALS

- Re-establish vegetation
- Provide stable soil conditions for the Site
- Create suitable land use conditions following mining.



Establish

- dry prairie,
- mesic prairie
- coniferous woodland communities

Provide

- ecological diversity
- woodland buffer along bluff line

Promote

Infiltration and groundwater recharge

DRY PRAIRE

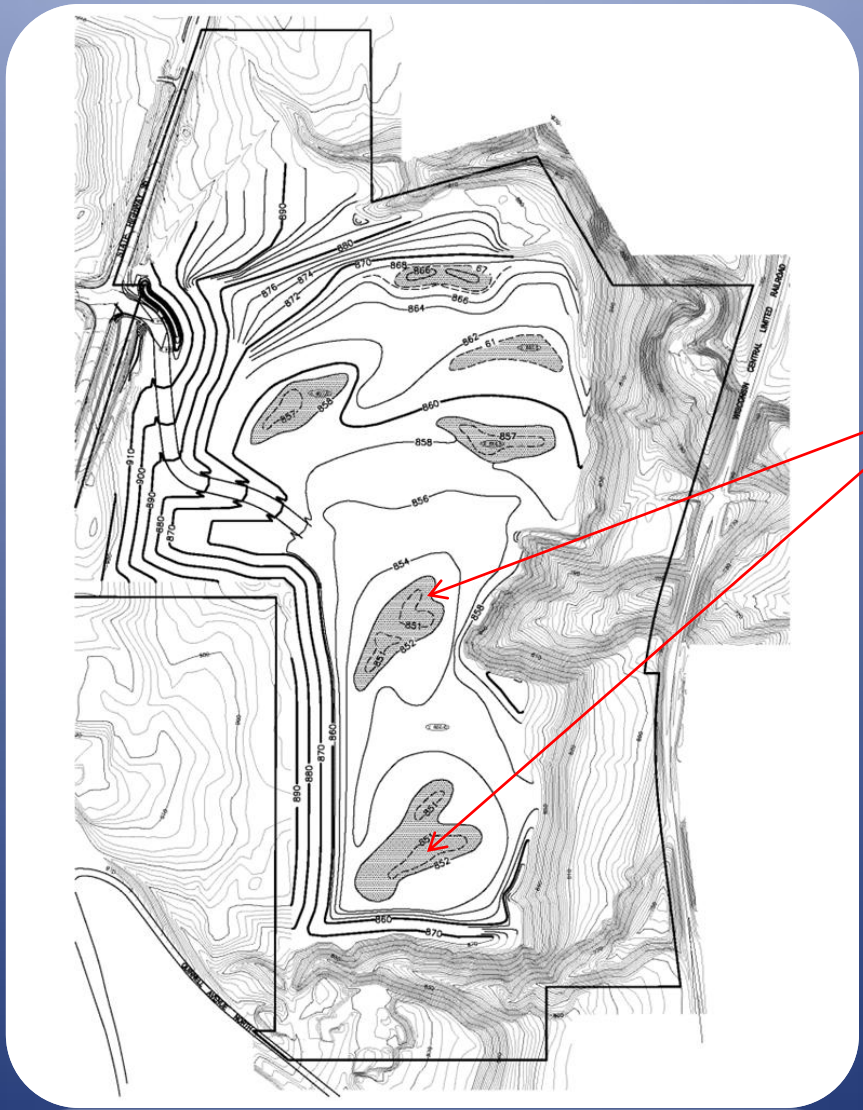
MESIC PRAIRIE

Reclamation Facts

- Current low point

Reclamation Facts

- Reclamation low point



Reclamation Facts

- Groundwater varies from less than 820 in the western portion of the mining limits to approximately 800 near the seeps east of the mining limits

  - Trails End 816. 7 msl
  - Magnuson 819.4 msl

Carnelian-Marine-St. Croix Watershed District requirements

- Infiltration basin bottom must be three feet above the seasonally high water table if the basin is in the contributing area to groundwater – dependent natural resource

Proposed Minimum Mining Elevations and Minimum Reclamation Elevations

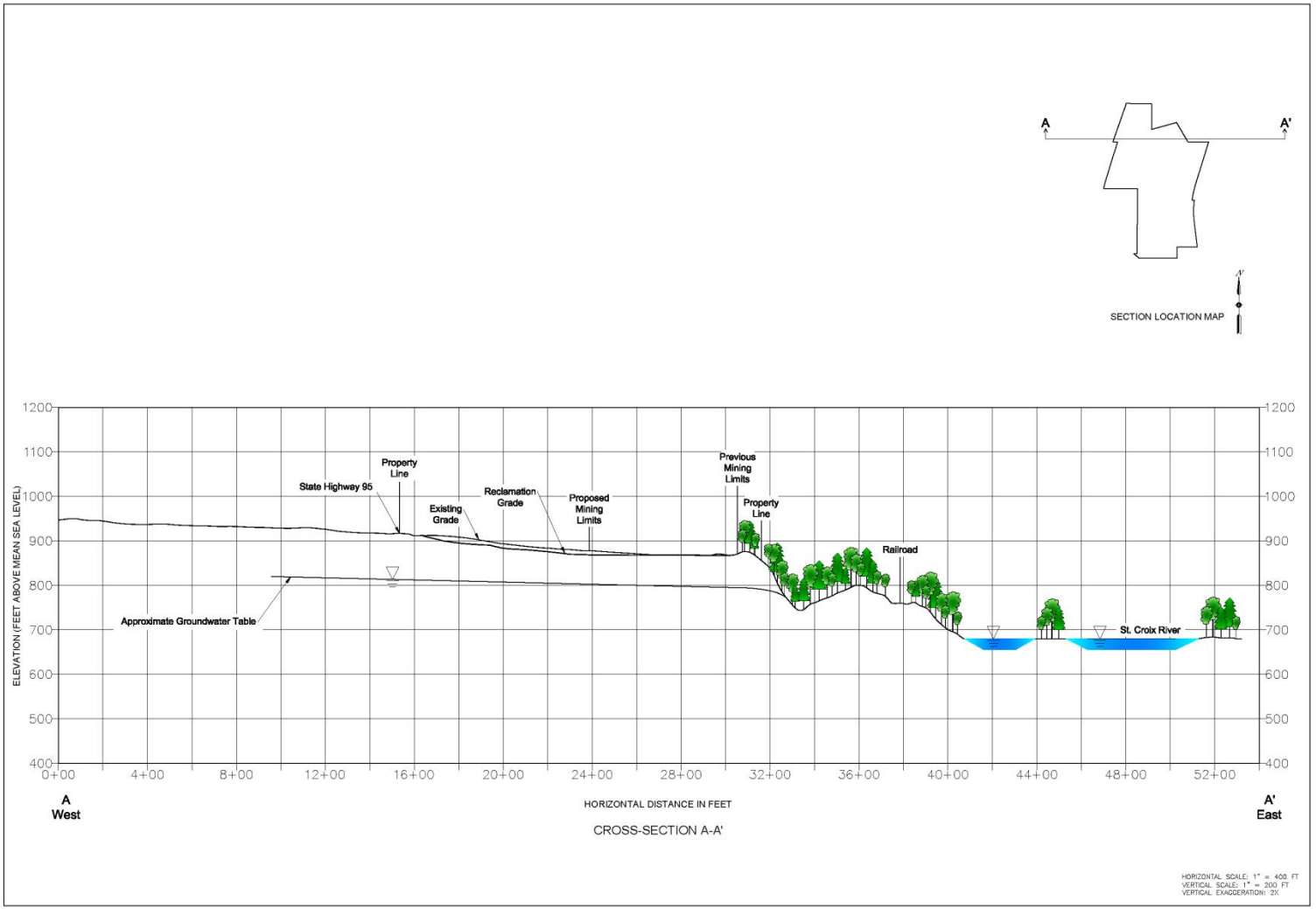
- Proposed minimum mining elevation 840 msl
- Separation from the water table during mining:

20-40 feet

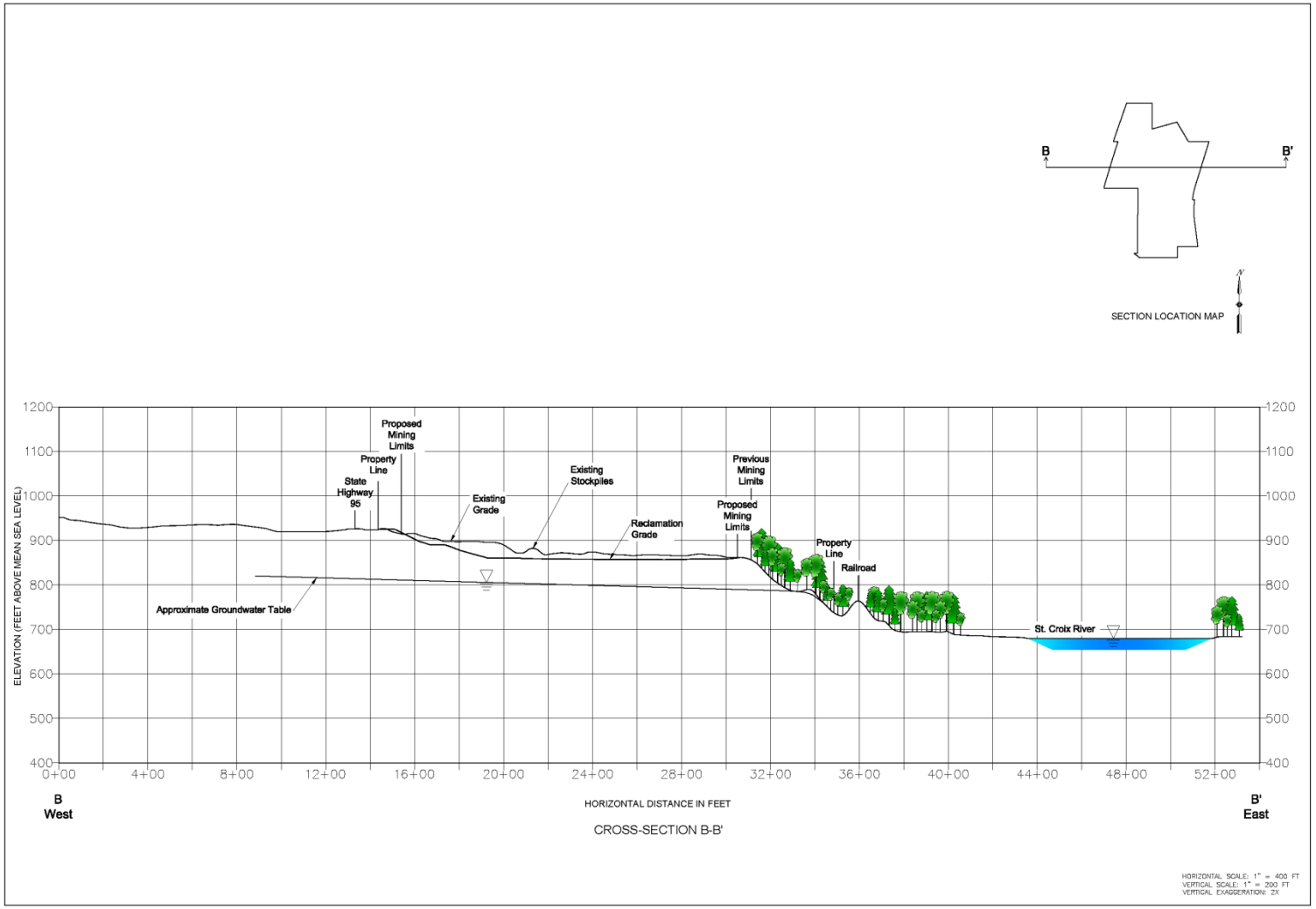
- Proposed minimum reclamation elevation 851 msl
- Separation from the water table after reclamation:

30-50 feet

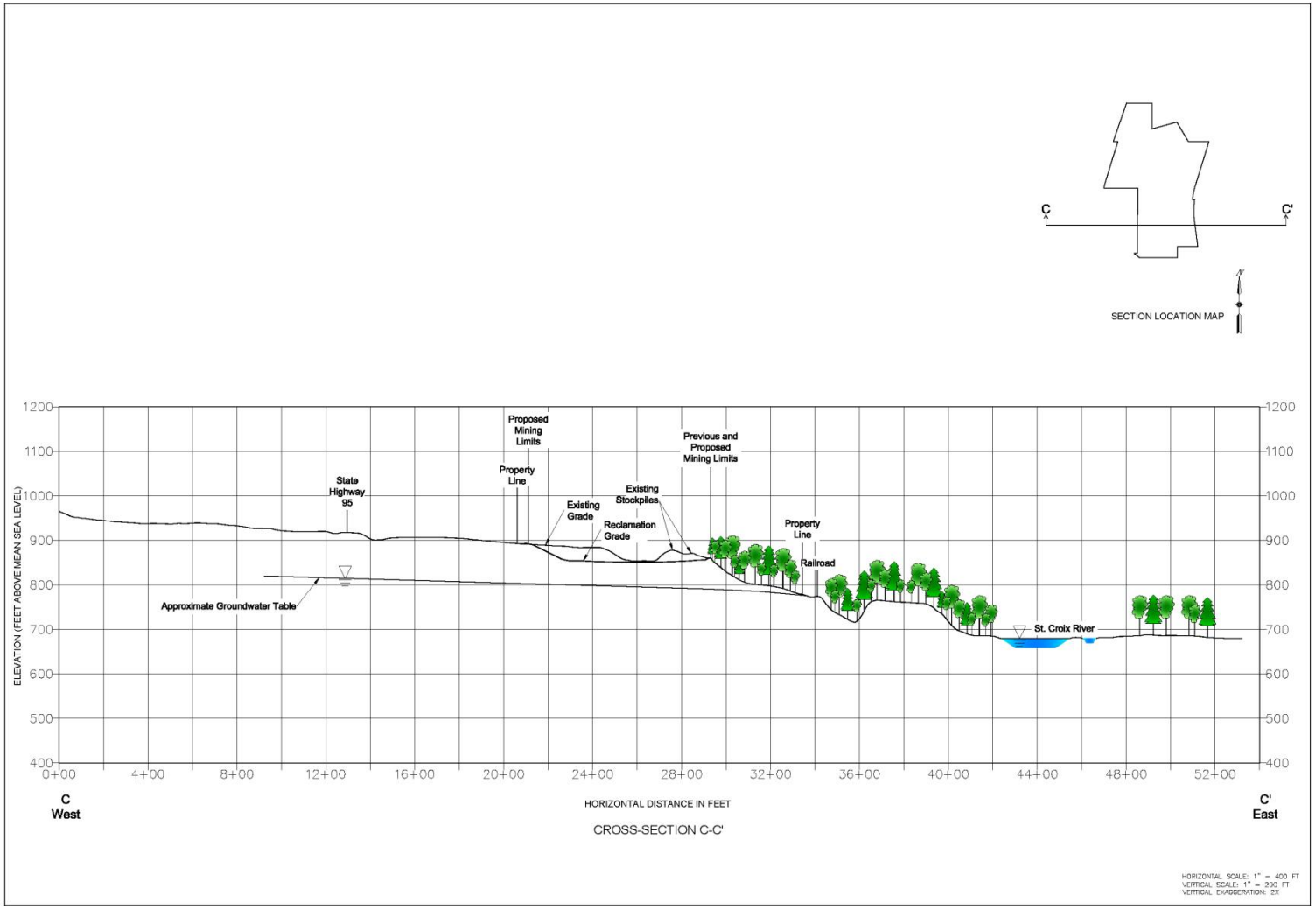
West-East cross sections



West-East cross sections



West-East Cross Section



Reclamation Facts

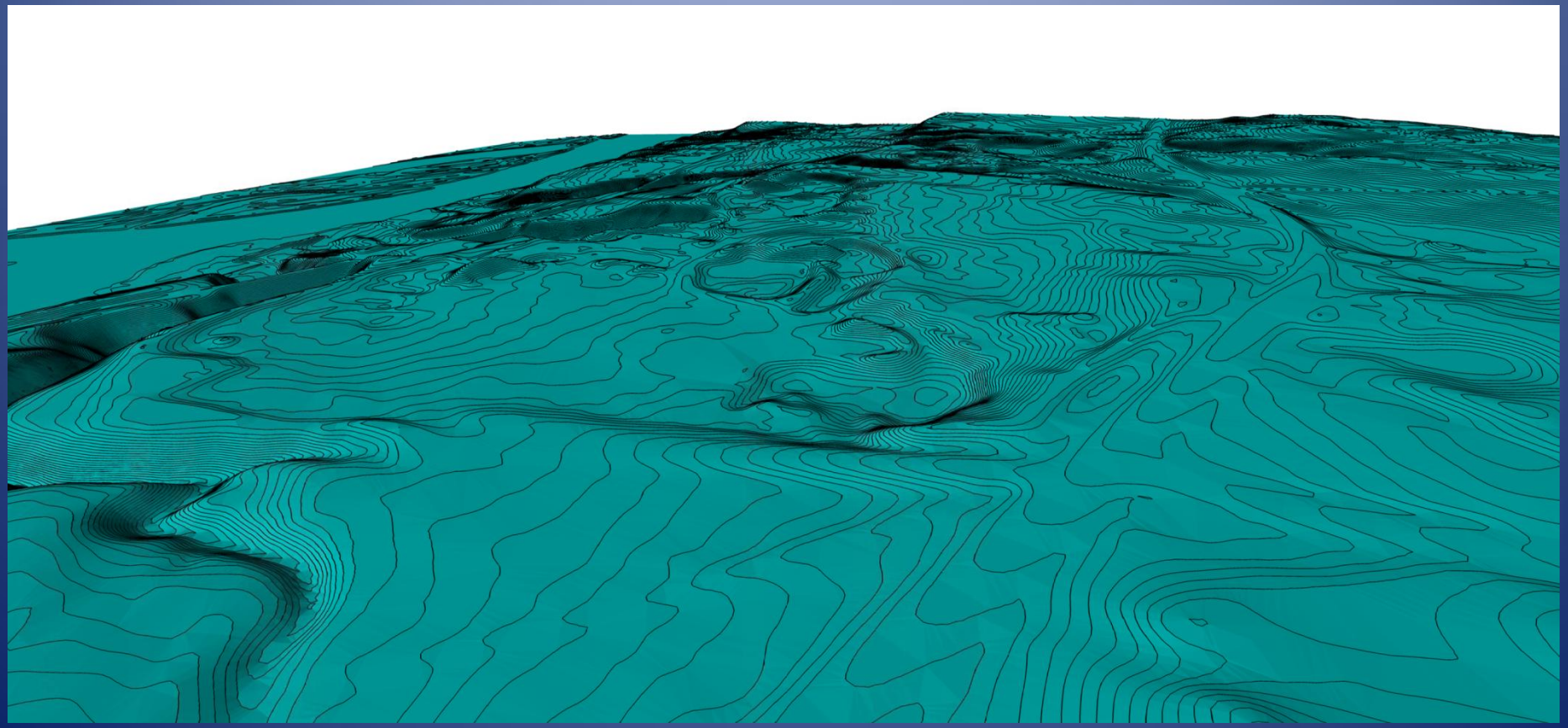
- On average the Site will be lowered ***less*** than 15’
- Difference between existing grade and proposed grade calculated over entire mining areas: 11 feet
- Calculated over just the “terrace” area: 14.6’

Reclamation Facts

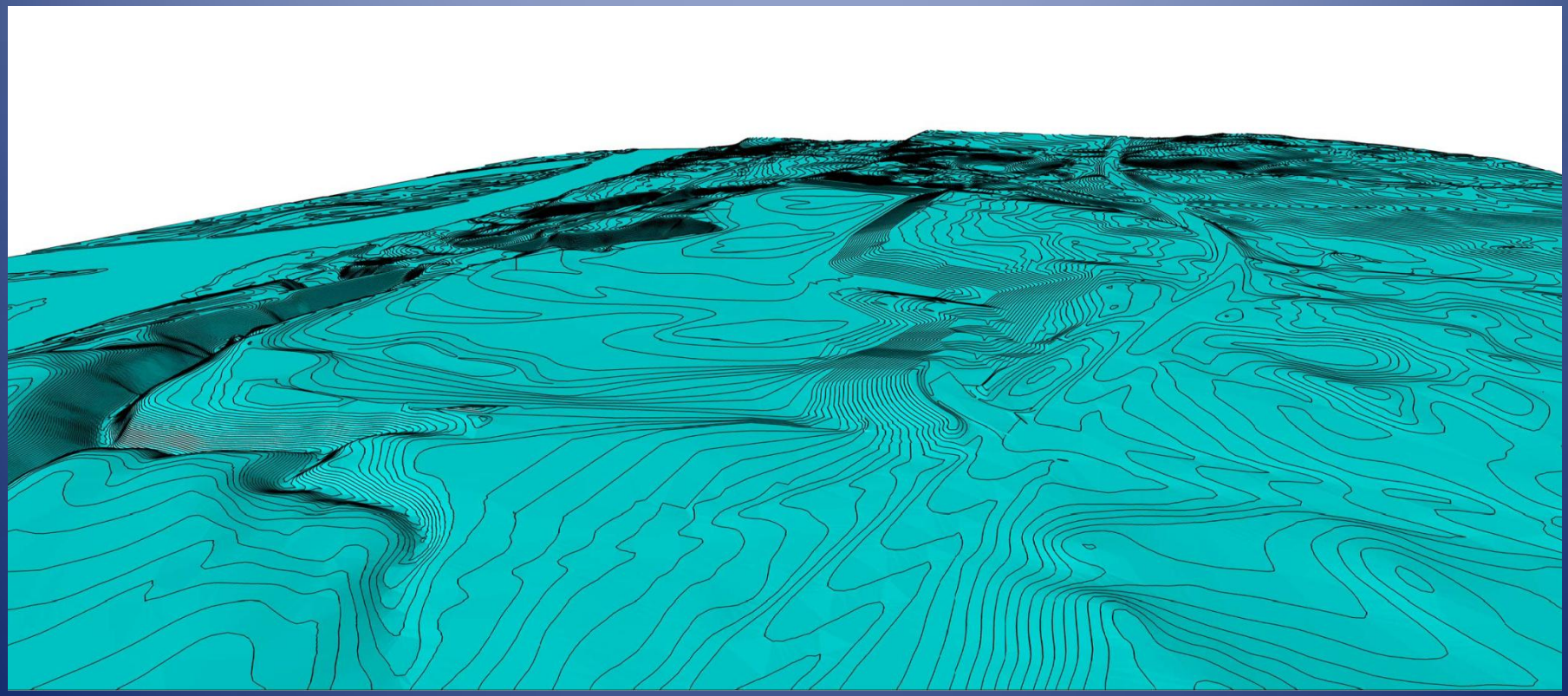
- The current difference in elevation between the highest point within the mining limits (930) and the lowest point within the mining limits (852) is **78 feet**

- The proposed difference in elevation between the highest point within the mining limits (930) and the lowest point within the mining limits (851) is **79 feet**

Current view from northwest looking south southeast



After reclamation - view from northwest looking south southeast



Traffic Overview

Alternative 1 – 5 to 10 years of Mining –
6 to 12 weeks of mining a year
334 to 400 trips per working day
560 round trips peak day
40 round trips a day peak reclamation topsoil
Total peak is 600 round trips a day

Alternative 3
12 to 18 weeks of mining a year
334 to 400 round trips per working day
560 round trips peak day
40 round trips peak reclamation topsoil
Total peak haul is 600 round trips a day

Alternative 2
6 to 20 weeks of mining a year
210 to 528 round trips per working day
560 round trips peak day
No reclamation
Total peak haul is 560 round trips a day

Subalternative 3A
30 weeks of mining in 1 year
696 round trips per working day
736 round trips peak day
40 round trips peak reclamation topsoil
Total peak haul is 736 round trips a day

Traffic: EIS Conclusions

- Under all project alternatives, the level of service analysis indicated that the TH 95 and TH 97 intersection has sufficient gaps for traffic, even during the morning and evening “rush hour” and similar conditions.
- Mn/DOT has reviewed the sight distance at the TH95 and TH 97 intersection and found no deficiencies.
- The crash analysis completed for all of the road segments on TH 95 and TH 97 indicate that crash rates were well below the statewide average for similar roads.

Traffic: EIS Conclusions

- The existing roadway network is sufficient to handle the daily traffic volumes in the area. TH 97 and State Scenic Byway TH 95 are state highways designed to accommodate regional traffic. The peak hour truck volumes are also within the capacity of the roadways.

- Periods of congestion may be experienced during peak weekend travel times or on a holiday weekend, with or without the proposed Project.

- Removing the current hauling traffic from the river crossing at TH 243 and the portion of State Scenic Byway TH 95 north of the Zavoral Site should be beneficial to vehicles using these roadways to get to the state park or enjoy other recreational opportunities in the area.

Traffic: EIS Conclusions

Scandia Elementary School

- The school does not cite any major concerns with traffic and safety on TH 97. They recognize it is a busy highway and do not have activities near the area.

- The traffic operation, capacity, and safety were evaluated for the school driveways (at TH 97 and Oakhill Road). No problems were found with capacity or safety based on traffic volumes and turning movements out of the driveway

EIS Findings
Pertaining to Air Quality

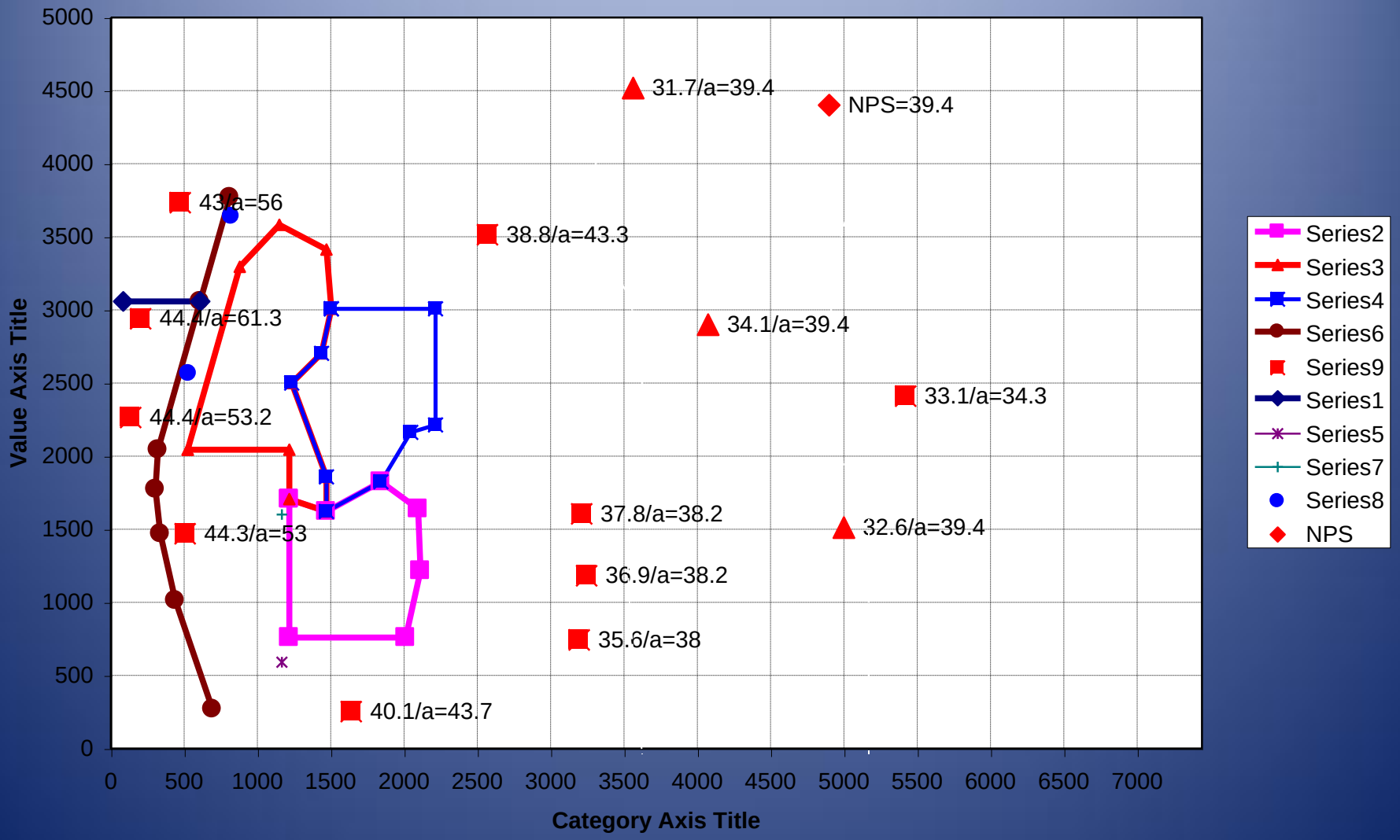
- Predicted impacts from Project sources would not result in exceedances of the national ambient Air Quality Standards for PM, PM_{10} or $PM_{2.5}$
- Predicted silica concentrations are well below CA's ambient concentrations for respirable silica
- Unlikely that fugitive dust would adversely impact the water quality in the St. Croix River under either uncontrolled or mitigated condition

Noise

- Potential noise sources reduced when processing was removed from the Proposed Project

- Berms and topographic shielding reduce noise emissions

Predicted Average Mining L50 Levels Below ambient at receptors and Park



Predicted Average L50, Mining and Truck hauling, Combined Total, Increase over Ambient

Receptor Location	Phase 3 Average L50	Haul truck L50	Phase 3 Pit+truck L50	Ambient Pred or 39 at 11,12, 13	Totals NPS amb 11,12.13	Increase over ambient Ambient
1-Home	43.0	40.6	45.0	56.0	45.0	-11.0
2-Home	44.4	43.3	46.9	61.3	46.9	-14.4
3-Home	44.4	42.9	46.7	53.2	46.7	-6.5
4-Home	44.3	42.0	46.3	53.0	46.3	-6.7
5-Home	38.8	34.8	40.3	43.3	40.3	-3.0
6-Home	40.1	36.2	41.6	43.7	41.6	-2.1
7-Home on River	37.8	32.8	39.0	38.2	39.0	0.8
8-Home on River	36.9	33.0	38.4	38.2	38.4	0.2
9-Home on River	35.6	31.9	37.2	38.0	37.2	-0.8
10-Home (WS)	33.1	28.3	34.3	34.3	34.3	0.0
11-Wildlife Area	31.7	28.1	33.3	39.4	33.3	-6.1
12-River Island	34.1	29.8	35.5	39.4	35.5	-3.9
13-River Bank (WS)	32.6	28.8	34.1	39.4	34.1	-5.3

MPCA's A Guide to Noise Control in Minnesota

Perceived Change in Decibel Level

Change in Sound Level	Perceived Change to the Human Ear
+ 1 dB	Not Perceptible
+ 3 dB	Threshold of Perception
+ 5 dB	Clearly Noticeable

EIS Concludes

- Sound levels at the mine site do not exceed applicable standards
- Noise impacts to residences and Scandia Elementary are not predicted to change from current conditions.
- If the Zavoral Site were not permitted, it would not result in lower noise impacts to receptors along the haul route because aggregate hauling would still occur to the Scandia Mine from other locations

Groundwater Use

- No Washing
- Water appropriations permit *not* needed
- Water use for Dust Control Only
- Water Use Intermittent Basis Only

EIS

Pump Test: Pumped at 17 times the daily rate Tiller will pump

- 3.5 feet of drawdown in the Zavoral Well, no impact to water supply
- Other wells at greater distances will have even less drawdown
- No measurable drawdowns observed in the Trail's End or Magnuson Wells

Water Resources

Stormwater Pollution Prevention Plan has been prepared in accordance with MPCA Rules and NPDES Program

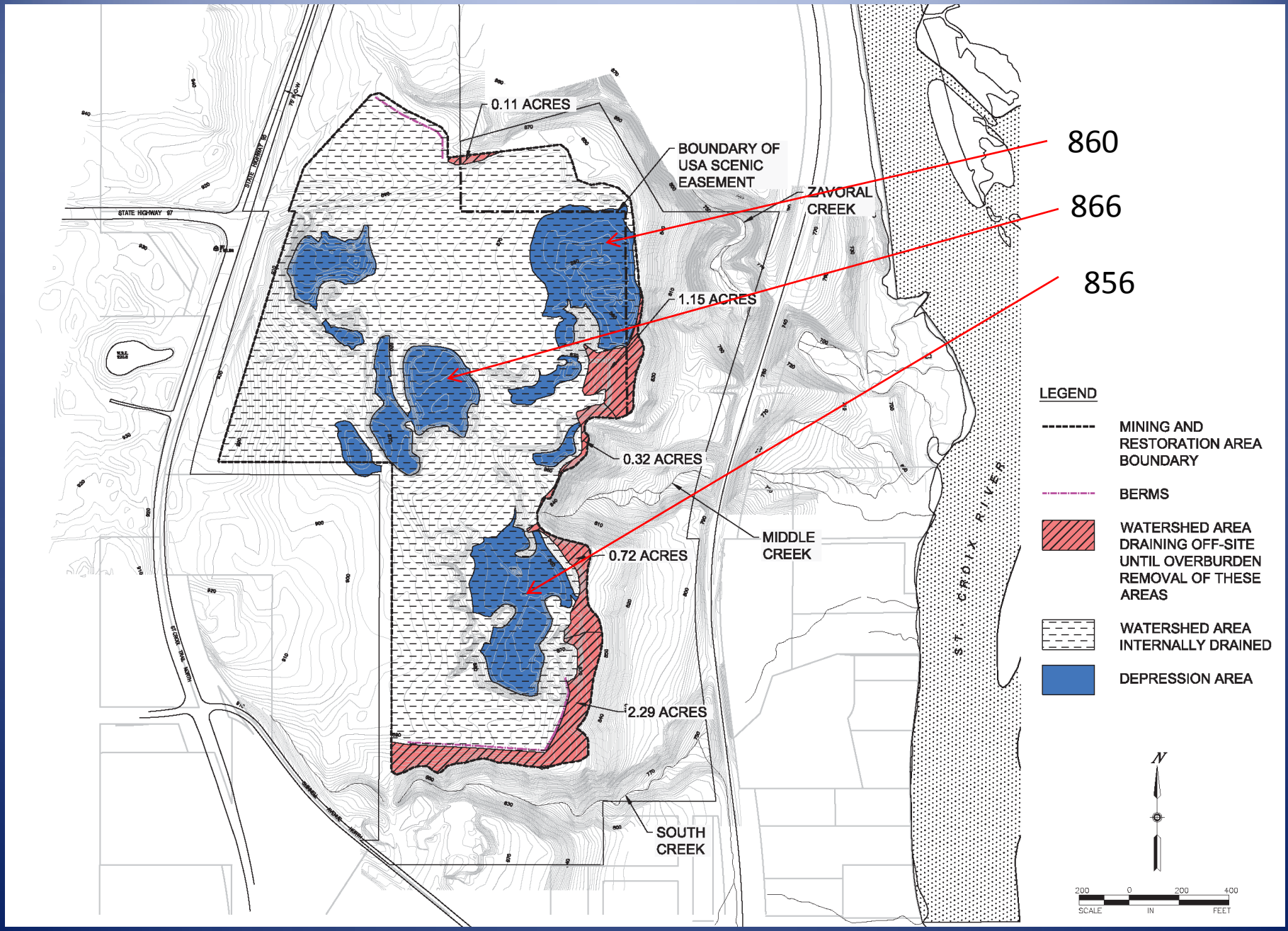
- Best Management Practices to minimize erosion and sedimentation and stabilize the site

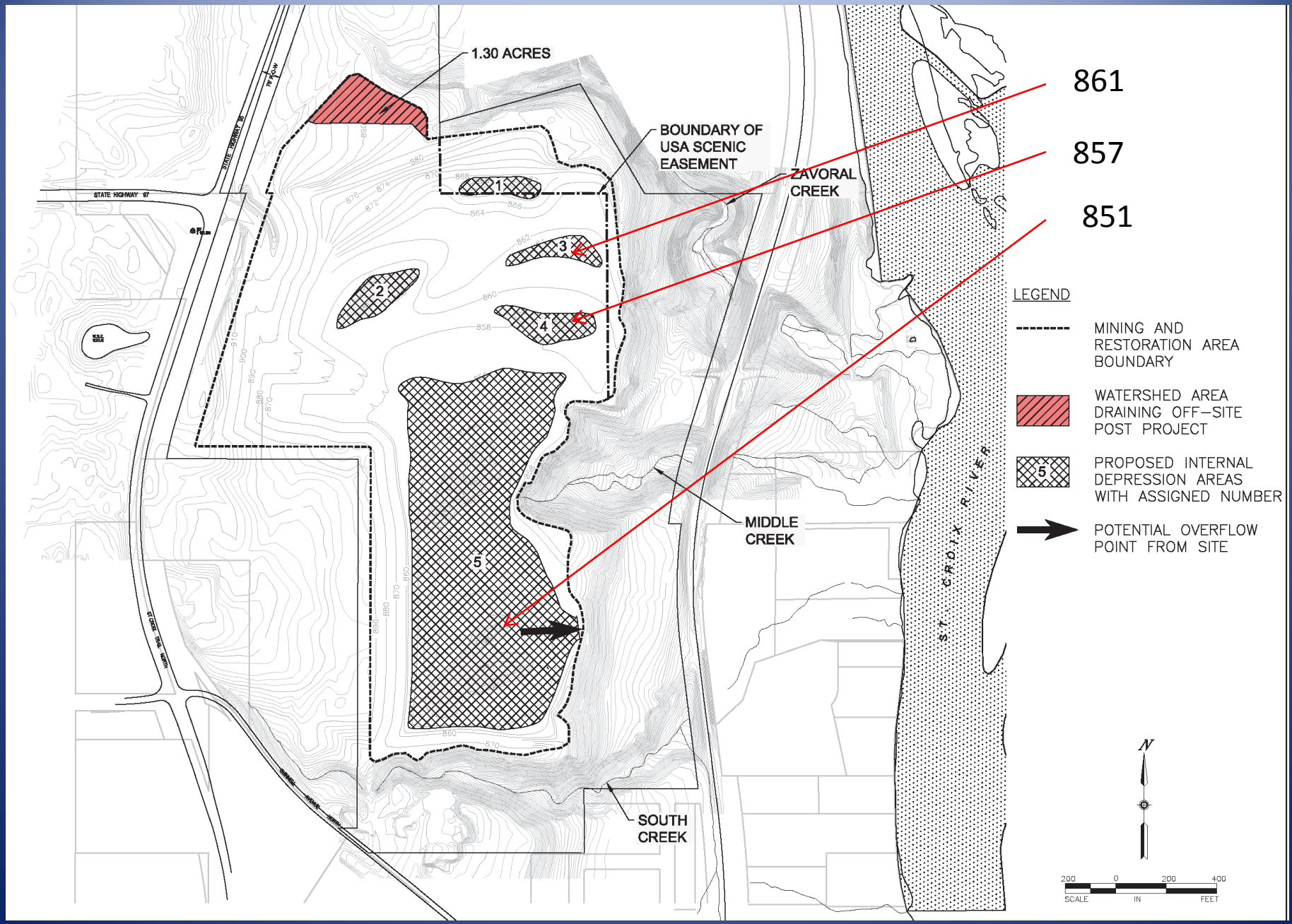
Depressions:

- Manage stormwater with no overflow in back to back 100 year events
- Create areas of ecologic diversity
- Infiltration basins moved away from bluff line
- Reclamation will increase the amount of infiltration and reduce surface water runoff – Benefit to nearby streams

Water Resources

- Elevation of low areas today: is similar to those in reclamation plan, therefore not a significant difference in travel time or depth of materials that infiltrated water flows through.


0.11 ACRES
BOUNDARY OF USA SCENIC EASEMENT
ZAVORAL CREEK
1.15 ACRES
0.32 ACRES
MIDDLE CREEK
0.72 ACRES
2.29 ACRES
SOUTH CREEK
STATE HIGHWAY 87
ST. CROIX RIVER
860
866
856
LEGEND
MINING AND RESTORATION AREA BOUNDARY
BERMS
WATERSHED AREA DRAINING OFF-SITE UNTIL OVERBURDEN REMOVAL OF THESE AREAS
WATERSHED AREA INTERNALLY DRAINED
DEPRESSION AREA
N
200 0 200 400
SCALE IN FEET


1.30 ACRES
BOUNDARY OF USA SCENIC EASEMENT
ZAVORAL CREEK
MIDDLE CREEK
SOUTH CREEK
ST. CROIX RIVER
STATE HIGHWAY 97
STATE HIGHWAY 95
861
857
851
LEGEND
MINING AND RESTORATION AREA BOUNDARY
WATERSHED AREA DRAINING OFF-SITE POST PROJECT
PROPOSED INTERNAL DEPRESSION AREAS WITH ASSIGNED NUMBER
POTENTIAL OVERFLOW POINT FROM SITE
N
200 0 200 400
SCALE IN FEET