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IMPROVING YOUR WORLD
Reynolds, Smith and Hills, Inc.

4525 Airport Approach Road, Suite A
Duluth, Minnesota 55811
P: 218-722-1227
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Date: August 4, 2009

RE: **City of Duluth Bid #09-4404 - (North Busniess Development Area)**
**Addendum #1**

TO: Prospective Bidders

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated August 18, 2009. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

**Invitation to Bid:**

No Changes.

**Bid Form:**

Remove the two pages of "STATEMENT OF ESTIMATED QUANTITIES" from the Bid Form and replace with the attached three pages of "STATEMENT OF ESTIMATED QUATNITIES." In the Bid Form. No changes in bid items or quantities.

**Specifications:**

Add attached "Storm Water Prevention Plan" to the Table of Contents under Part II - Appendix, and insert "Storm Water Prevention Plan in Part II – Appendix of Volume II of the Specifications.

Technical Specifications Item P-104 PROJECT SURVEY AND STAKEOUT- Add the following sentence to the end of the first paragraph 104-1.1 "Records drawings shall be surveyed and submitted to the Engineer, signed, sealed and stamped by a Professional Land Surveyor."

Technical Specifications Item P-152 EXCAVATION AND EMBANKMENT – Add the following under BASIS OF PAYMENT ITEM 152-4.2. "All rock excavation shall be disposed of off airport property".

**Drawings:**

Sheet C004 Construction Safety and Phasing Plan (Sheet 1 of 2) The Phasing schedule shall be deleted and replaced with the following. Phase 1: "THIS PHASE SHALL INCLUDE ALL WORK GREATER THAN 260' FROM TAXIWAY "B" CENTERLINE. PHASE 1 SHALL BE LIMITED 120 CALENDAR DAYS. A MINUMUM OF 40 CALENDAR DAYS WILL BE CHARGED IN 2009. THE REMAINING CALENDAR DAYS WILL RESUME NO LATER THAN JUNE 1, 2010." PHASE 1B: "THIS PHASE SHALL INCLUDE ALL WORK WITHIN 260' OF TAXIWAY "B" CENTERLINE. THIS PHASE SHALL BE LIMITED TO 30 CONTINIOUS CALENDAR DAYS. THE TOTAL CONTRACT TIME SHALL NOT EXCEED 120 CALENDAR DAYS."

All else remains the same.

Sincerely,
Reynolds, Smith and Hills, Inc.

Darren K. Christopher, PE

**END OF ADDENDUM NO. 1**

KRECH OJARD & ASSOCIATES, P.A. *Engineers & Architects*

# DULUTH INTERNATIONAL AIRPORT NORTH BUSINESS DEVELOPMENT AREA

# DULUTH AIRPORT AUTHORITY DULUTH, MINNESOTA

## STORM WATER POLLUTION PREVENTION PLAN

KOA PROJECT NO. 091047
August 18, 2009

Krech Ojard & Associates, P.A.
227 West First Street, Suite 200
Duluth, MN 55802
Phone 218-727-3282
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# 1) INTRODUCTION

This Storm Water Pollution Prevention Plan (SWPPP) has been developed as part of the MPCA NPDES/SDS Construction Permit requirements for construction activities disturbing greater than one acre of ground surface. The purpose of the SWPPP is to maximize the potential benefits of pollution prevention and sediment and erosion control measures at construction sites. Development, implementation, and maintenance of the SWPPP will provide the owner/operator with the framework for reducing soil erosion and minimizing pollutants in storm water discharging from the site for both during and after construction.

REFERENCES

The Duluth International Airport North Business Development Area construction plans and specifications are incorporated into this document by reference.

OBJECTIVES

This SWPPP will:

- Provide general construction information;
- Describe the existing site conditions;
- Identify those responsible for developing, implementing, maintaining, and revising this SWPPP;
- Determine the change in impervious surface and identify the types of permanent stormwater treatment methods to be utilized (if necessary);
- Recognize sources of storm water and non-storm water contamination to the storm water drainage system;
- Describe the practices that will be implemented to control erosion and the release of pollutants in storm water;
- Describe the practices that will be implemented to control sediment from leaving the site.
- Create an implementation/maintenance schedule to ensure that the practices described in this SWPPP are in fact implemented and to evaluate the plan's effectiveness in reducing erosion, sediment, and pollutant levels in storm water discharged from the site;
- Describe the final stabilization/termination design to minimize erosion and prevent storm water impacts after construction is complete.

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## 2) CONSTRUCTION ACTIVITY INFORMATION

| | | |
|---|---|---|
| **Project Name** | | |
| Duluth International Airport – North Business Development Area | | |
| **Project Location** | | |
| Duluth International Airport.<br>SW¼ of NW ¼ of Section 1, T50N, R15W.<br>Latitude: 46.8450 N<br>Longitude: 92.1930 W | | |
| **Project Size** | | |
| *Number of Acres:* 13.2± Acres | | |
| *Number of Acres to be Disturbed:* 13.2± Acres | | |
| **Project Type** | | |
| *Residential* | *Commercial/Industrial* ✓ | *Road Construction* ✓ |
| *Other (describe)* | | |
| **Cumulative Impervious Surface** | | |
| *Existing area of impervious surface:* 1.9 Acres | | |
| *Post construction area of impervious surface:* 5.30 Acres (Initial), 2.70 (Future) | | |
| *Increase in impervious surface:* 6.1 Acres (Ultimate) | | |
| **Receiving Waters** | | |
| *Name of Water Body* | *Type: (ditch, pond, wetland, lake, stream, river)* | *Special Water, Impaired Water* |
| Wild Rice Lake Reservoir | Lake | No Yes |
| | | |
| **Dates of Construction** | | |
| *Construction Start Date:* July 2009 | *Estimated Completion Date:* Fall 2009 | |

## 3) PROJECT/SITE DESCRIPTION

The proposed project consists of the construction of a new taxiway, apron, access road, parking lot and utilities to service the business development area. The North Business Development Area will expand the airport's commercial and educational capacity by providing needed hangar space for Monaco Air Duluth and hanger and educational space for Lake Superior College. It is also proposed that two buildings will be constructed in the future for others as needed.

The project area is located to the north of runway 9-27 of the Duluth International Airport, Duluth Minnesota. The project site is constrained by the existing runway to the south, the existing Aircraft Rescue Facility to the east, and undeveloped land to the north and west.

Soils in the project consist of approximately topsoil or existing fill overlying fill consisting of silty or clayey sand with gravel. The Hydrolic Soils Group (HSG) for the soils in the project area are C/D. Please refer to the attached soils report for more information.

Drainage flows overland to the north toward the existing wetland area. It then flows to the west to a existing storm water treatment pond with an outlet control structure and then north along an unidentified watercourse towards the Wild Rice Lake Reservoir which is approximately 2.6 miles from the sites discharge point (See attached drainage map). Since the discharge point of the project is greater than 1 mile from the impaired water, no additional requirements per Appendix A of the permit are required.

# 4) STORMWATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team are familiar with the project site and proposed development plan. If at any time during the project the members or their responsibilities change, it shall be documented in the SWPPP.

The members of the team and their responsibilities (i.e. preparing, implementing, maintaining, record keeping, submitting reports, conducting inspections) are as follows.

**Table 1: SWPPP TEAM MEMBERS**

| Name/Company | Contact Info | Responsibility |
|---|---|---|
| Brian Grefe,<br>Duluth Airport Authority | Phone: (218) 727-2968<br>Fax: (218) 727-2960<br><br>4701 Grinden Drive,<br>Duluth, MN 55811 | Owner/ Operator/ Co-Permittee<br>- General oversight of the project<br>- Long term operation and maintenance of Permanent Stormwater Management System. |
| To be Determined | | Contractor/ Co-Permittee<br>- Responsible for compliance with the terms and conditions of the permit during construction.<br>- Oversight of the construction project.<br>- Reviewing the plan, inspection reports, amendments and corrective Actions.<br>- Oversee day to day operations for the construction project.<br>- Maintain compliance with the Plan and install (and maintain) all erosion and sediment control measures.<br>- Conduct and document onsite inspections.<br>- Amend plan as necessary. |
| Krech Ojard & Assoc. | (218) 727-3282<br><br>227 W. 1st Street,<br>Suite 200,<br>Duluth, MN 55802 | Plan Preparer<br>- KOA was hired by RS&H (Prime Consultant) to prepare portions of the construction documents and the SWPPP. |

# 5) TRAINING

**Table 2: TRAINING OF SWPPP TEAM MEMBERS**

| Duty/ Task | Personnel Name/Company & Contact Info. | Type of Training, Date(s), Location, Instructor | Content of Training Course or Workshop (incl. hours) |
|---|---|---|---|
| SWPPP Preparer | Scott Stempihar<br>Krech Ojard & Assoc.<br>227 W. 1st Street,<br>Suite 200,<br>Duluth, MN 55802<br><br>(218) 727-328 | o Design of SWPPP<br>o November 1-2, 2006<br>o Arden Hills, MN<br>o Univ. of MN ESC Program | Training for preparation of SWPPP<br>16 hours (est.) |

| | | | |
|---|---|---|---|
| Oversight, Inspections, Amendments | To Be Determined | | |
| Installation, Maintenance (During Construction) | To Be Determined | | |

## 6) PERMANENT STORMWATER MANAGEMENT

Where a project's ultimate development replaces vegetation and/or other pervious surfaces with one or more acres of cumulative impervious surface, a water quality volume of ½ inch of runoff from the new impervious surfaces created by the project must be treated by one of the methods outlined in Part III.C.1 through Part III.C.5 prior to the runoff leaving the construction site or entering surface waters (excluding man made drainage systems that convey stormwater to a constructed permanent stormwater management facility designed to treat the water quality volume from the project).

### A) IMPERVIOUS SURFACE CALCULATIONS

| Surface Type | Existing Impervious | Proposed Impervious | Planned Future Impervious |
|---|---|---|---|
| Roads/Parking Lot | 82,665 sq.ft. | 71,675 sq.ft. | 27,977 sq.ft. |
| Roofs/Sidewalks | 0 sq.ft. | 34,194 sq.ft. | 90,000 sq.ft |
| Apron/Taxiway | 0 sq.ft. | 123,390 sq.ft. | 0 sq.ft. |
| **Total Surface** | 82,665 sq.ft. | 229,259 sq.ft. | 117,977 sq.ft. |
| **Increase in Impervious Surface** | 264,571± sq.ft. or 6.10± acres (Ultimate) | | |

### B) PERMANENT STORMWATER MANAGEMENT BMP'S

Since the change in impervious surfaces is greater than one acre, permanent storm water treatment BMP's will be required for this project. The water quality volume (WQV) to be treated is ½" of runoff from the increase in impervious surface area created.

Required water quality volume to be treated = 0.254 ac-ft (11,100 cu. ft.)
Proposed water quality volume to be treated = 0.889 ac-ft (12,500 cu. ft.) (Storage below overflow weir elevation)

Underground Detention Chambers/ Filtration areas will be constructed to capture and treat stormwater runoff from rooftops and paved surface areas.

- The underground detention/infiltration facilities will accommodate and provide treatment for runoff resulting from storm events up to the 2 year 24 hour storm event. Discharge from the underground detention/infiltration facilities are controlled by an outlet control structure consisting of a 6" orifice and a broad crested weir. Peak Runoff in excess of the 2 year 24 hour storm event will bypass the system through a high flow bypass pipe.

- The stormwater outfall discharges into a manmade pond with a surface area of approximately 11,300 s.f. and then to the existing wetland area along the north side of the site.
- Underground detention areas are required as a result of current FAA regulations that do not permit construction of new surface water impoundments (water quality ponds, rain gardens, etc.) within 10,000 feet of airport runways due to these impoundments' ability to attract waterfowl.
- The underground detention/filtration facilities will permit the runoff to cool before being discharged. This will minimize the direct discharge of the initial half inch of runoff which has been heated by traveling across the paved surfaces.
- Please refer to the final plans, details and specifications for locations, sizing and materials to be used.

Please refer to Section 11 for identification of maintenance measures for the Stormwater Management system and refer to the final plans, details and specifications for locations, sizing and materials to be used.

### C) PRE-DEVELOPMENT VS. POST-DEVELOPMENT RUNOFF

| | 2-YR-24 HR | | 10-YR-24HR | | 100-YR-24HR | |
|---|---|---|---|---|---|---|
| | Runoff (ac-ft) | Peak (cfs) | Runoff (ac-ft) | Peak (cfs) | Runoff (ac-ft) | Peak (cfs) |
| Pre-Development | 0.85 | 12.43 | 1.45 | 20.95 | 2.24 | 31.67 |
| Post-Development | 1.31 | 13.93 | 1.97 | 26.49 | 2.80 | 42.32 |

## 7) POTENTIAL SOURCES OF POLLUTION

The purpose of this section is to identify pollutants that could impact storm water during construction.

Pollutants that result from clearing, grading, excavation, and building materials and have the potential to be present in storm water runoff are listed in Table 4. This table includes information regarding material type, chemical and physical description, and the specific regulated storm water pollutants associated with each material.

**Table 3: POTENTIAL CONSTRUCTION SITE STORM WATER POLLUTANTS**

| Trade Name Material | Chemical/Physical Description (1) | Storm Water Pollutants (1) |
|---|---|---|
| Pesticides (insecticides, fungicides, herbicides, rodenticides) | Various colored to colorless liquid, powder, pellets or grains | Chlorinated hydrocarbons, organophosphates, carbamates, arsenic |
| Fertilizer | Liquid or solid grains | Nitrogen, phosphorous |
| Plaster | White granules or powder | Calcium sulphate, calcium carbonate, sulfuric acid |
| Cleaning solvents | Colorless, blue or yellow-green liquid | Perchloroethylene, methylene, chloride, trichloroethylene, petroleum distillates |
| Asphalt | Black solid | Oil, petroleum distillates |
| Concrete | White solid | Limestone, sand |
| Glue, adhesives | White or yellow liquid | Polymers, epoxies |
| Paints | Various colored liquid | Metal oxides, Stoddard solvent, talc, calcium |

| | | |
|---|---|---|
| | | carbonate, arsenic |
| Curing compounds | Creamy white liquid | Naphtha |
| Wastewater from construction | Water | Soil, oil & grease, solids |
| Wood preservatives | Clear amber or dark brown liquid | Stoddard solvent, petroleum distillates, arsenic, copper, chromium |
| Hydraulic oil/fluids | Brown oily petroleum hydrocarbon | Mineral oil |
| Gasoline | Colorless, pale brown or pink petroleum hydrocarbon | Benzene, ethyl benzene, toluene, xylene, MTBE |
| Diesel fuel | Clear, blue-green to yellow liquid | Petroleum distillate, oil & grease, naphthalene, xylenes |
| Kerosene | Pale yellow liquid petroleum hydrocarbon | Coal oil, petroleum distillates |
| Antifreeze/coolant | Clear green/yellow liquid | Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc) |
| Erosion | Solid particles | Soil, sediment |

(1) Data obtained from MSDSs when available

## 8) POTENTIAL AREAS FOR SOURCES OF POLLUTION

Areas prone to soil erosion shall be protected, and the soil kept out of the storm water discharge. The following potential source areas of storm water contamination were identified and evaluated:

- Cleared and grubbed areas;
- Building construction/areas;
- Construction site entrance, roadway and driveway construction;
- All undisturbed areas.

Table 5 presents site specific information regarding storm water pollution from each of these areas.

**Table 4: LOCATIONS OF POTENTIAL SOURCES OF STORMWATER CONTAMINATION**

| Potential Storm Water Contamination Point | Potential Pollutants | Potential Problems |
|---|---|---|
| Cleared and Grubbed Areas | Total Suspended Solids, Total Dissolved Solids | Erosion of exposed soils from cleared and grubbed areas have the potential to discharge pollutants to surface waters. Ruts caused by logging equipment can fill with water, preventing complete re-vegetation. |
| Building Construction/ | Plaster, cleaning solvents, asphalt, concrete, paints, hydraulic oil, gasoline, antifreeze, soil erosion, fertilizer, pesticides, glue adhesives, curing compounds, wood preservatives, kerosene | Accidental spills of paints and cleaning solvents, leaking hydraulic oil and antifreeze from construction equipment, gasoline diesel fuel spills while fueling construction equipment, erosion of exposed and stockpiled soils, and degradation of scrap dry wall can potentially contaminate storm water. Asphalt chemicals can be released to storm water if a rain even occurs before curing is complete. |
| Construction Site Entrance, Roadway, and | Asphalt, hydraulic oil, gasoline, antifreeze, soil erosion, fertilizer, | Leaking hydraulic oil and antifreeze from clearing, grading and asphalt application construction equipment. Gasoline and diesel |

| | | |
|---|---|---|
| Driveway Construction | pesticides | fuel spills while fueling construction equipment, erosion of exposed and stockpiled soils. Asphalt chemicals can be released to storm water if a rain event occurs before curing is complete. Tracking of soil into the road through the construction site entrance. |
| All Undisturbed Areas | None | No storm water related issues with undisturbed areas. |

# 9) BEST MANAGEMENT PRACTICES

BMP's or best management practices will be implemented on site to reduce the amount of pollutants in storm water discharged from the project. The staging of construction and placement of proper erosion and sediment control devices is critical to the prevention of a prohibited discharge of sediment from the project site. The project phasing will be according to the plans. The contractor shall be responsible for proceeding with construction phasing to minimize erosion and sedimentation. Prior to construction activities starting all down- gradient sediment control devices must be established as indicated on the plans before any up-gradient land disturbance activities begin. Areas not to be disturbed shall be delineated with flags, silt fence, stakes, signs, or other acceptable methods to prevent areas from being disturbed. The silt fence shall remain in place until final site stabilization.

The first step in the construction process will be to install perimeter sediment control measures as identified in the plan. The next step in the construction will be to strip and stockpile topsoil for use in the restoration of the site. The stockpile shall have silt fence placed around it and be stabilized with temporary seed with mulch or place plastic sheeting on top to prevent sedimentation from the stockpile area. Vehicle tracking of sediment from the construction site must be minimized by the use of stone pads, concrete or steel wash racks, or equivalent systems. All excavated materials unsuitable for building, backfill, or final stabilization shall be hauled off-site immediately and disposed of properly.

## A) TIME FRAMES

1. The Contractor(s) must plan for and implement appropriate construction phasing, vegetative buffer strips, horizontal slope grading, and other construction practices that minimize erosion, so that the inspection and maintenance requirements of Part IV.E. (of the General Permit) are complied with. The location of areas not to be disturbed must be delineated (e.g. with flags, stakes, signs, silt fence etc.) on the development site before work begins.

2. During construction, all exposed soil areas must be **stabilized** as soon as possible to limit soil erosion but in no case later than ***14 days*** after the construction activity in that portion of the site has temporarily or permanently ceased.

3. Temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots and similar surfaces are exempt from this requirement but must comply with Part 9.C.4 of this document (also Part IV.C.5. of the General Permit).

4. The **normal wetted perimeter** of any temporary or permanent drainage ditch or swale that drains water from any portion of the construction site, or diverts water around the site, must be **stabilized** within 200 lineal feet from the property edge, or from the point of discharge

into any **surface water**. Stabilization of the last 200 lineal feet must be completed within 24 hours after connecting to a **surface water**.

5. Stabilization of the remaining portions of any temporary or permanent ditches or swales must be complete within 14 days after connecting to a **surface** water and construction in that portion of the ditch has temporarily or permanently ceased.

6. Temporary or permanent ditches or swales that are being used as a sediment containment system (with properly designed rock ditch checks, bio rolls, silt dikes, etc.) do not need to be **stabilized**. These areas must be **stabilized** within 24 hours after no longer being used as a sediment containment system.

7. Pipe outlets must be provided with temporary or permanent **energy dissipation** within 24 hours after connection to a **surface water**.

## B) EROSION CONTROL PRACTICES

Erosion controls shall be addressed to prevent the exposure of soil to stormwater during construction activity. The erosion control practices that shall be implemented throughout the site are stated below:

1. Contractor shall minimize the amount of area disturbed to the maximum extent practical;

2. Dust on the site shall be controlled by spraying water on the dry areas of the site;

3. Class III Rip-Rap with Type IV Geotextile Fabric shall be placed at all culvert end sections and channelized conveyances as indicated on the site plan to prevent washouts;

4. Contractor shall construct stabilized diversion berms (when/where applicable) to divert stormwater runoff from entering the construction area.

5. In order to maintain sheet flow and minimize rills and/or gullies, there shall be no unbroken slope length of greater than 75 feet for slopes with a grade of 3:1 or steeper.

6. Rapid Stabilization Method 1 shall be used on all disturbed areas which cannot undergo final stabilization in order to satisfy the time frames of the permit.

7. Permanent seed and mulch shall be placed on all disturbed areas undergoing final stabilization according to the following specifications and as shown on plan sheets C400-C401;

   - Place 4" (min.) topsoil on all exposed surfaces;

   - Permanent seed mixture 250 at 125lbs/acre (Roadside Areas);

   - Fertilizer 10-10-10 at an application rate according to the manufacturer's recommendations for soil type;

   - Hydraulic Soil Stabilizer Type 6 shall be placed at 2100 lbs/acre;

   - Erosion Control Blankets Category 3 or 4 shall be used in lieu of hydraulic soil stabilizer on all slopes 3H: 1V or steeper as indicated in the plans.

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## C) SEDIMENT CONTROL PRACTICES

Sediment may still exist in stormwater runoff after the erosion control BMP's have been implemented and will exist in the stormwater runoff from the exposed areas actively being worked. To capture sediment in stormwater runoff, the following sediment control practices will be employed:

1. Silt fence (Machine Sliced, Heavy Duty) , bale barriers and straw bio-roll shall be installed as indicated on the site plan and down gradient of all areas disturbed due to construction;

2. A vegetative buffer shall be maintained around all wetland areas to the maximum extent possible.

3. Vehicle tracking of sediment from the construction site (or onto roads within the site) shall be minimized by **BMPs** such as stone pads, concrete or steel wash racks, or equivalent systems. Street sweeping must be used if such **BMPs** are not adequate to prevent sediment from being tracked onto the street (see Part IV.E.4.d. of the General Permit). Contractor shall have equipment available to sufficiently remove any soil, mud or debris washed, tracked or deposited onto paved surfaces. Such operations shall be performed at the end of each work day and immediately prior to rain events.

4. Temporary soil stockpiles will have silt fence or other effective **sediment controls**, and will not be placed in **surface waters**, including **stormwater** conveyances such as curb and gutter systems, or conduits and ditches unless there is a bypass in place for the stormwater.

5. All storm drain inlets will be protected by appropriate **BMPs** during construction until all sources with potential for discharging to the inlet have been **stabilized**. Contractor shall be responsible for selecting the most appropriate inlet control devices for each inlet. See Construction plan for identification and location of specific inlet control devices.

6. Permitee(s) should refer to Part IV.C.4. for information regarding emergency removal of inlet protection if a specific safety concern (street flooding/freezing) has been identified.

## D) ESTIMATED EROSION AND SEDIMENT CONTROL QUANTITIES

**Table 5: ESTIMATED EROSION AND SEDIMENT CONTROL QUANTITIES**

| DESCRIPTION | UNIT | QTY |
|---|---|---|
| Random Riprap Class III | Cyd | 100 |
| Bale Barrier | Lft | 200 |
| Silt Fence Type Machine Sliced | Lft | 3100 |
| Silt Fence Type Heavy Duty | Lft | 470 |
| Storm Drain Inlet Protection | Each | 6 |
| Filter Log Type Straw Bio-roll | Lft | 470 |
| Rock Construction Entrance | Sy | 990 |
| Seeding | Acre | 9.33 |
| Seed Mixture 250 | Lbs | 1200 |
| Erosion Control Blanket Category 3 | Sy | 14000 |
| Erosion Control Blanket Category 4 | Sy | 2500 |
| Fertilizer Type 3 10-10-10 | Lbs | 3750 |
| Hydraulic Soil Stabilizer, Type 6 | Lbs | 12500 |
| Rapid Stabilization Method 1 | Acre | 9.33 |

### E) POLLUTION PREVENTION MANAGEMENT MEASURES

Good housekeeping and spill control practices will be followed during construction operations to minimize storm water contamination. The following pollution prevention measures will be utilized to prevent stormwater contamination:

- Fertilizers will be applied only in the minimum amounts as recommended by the manufacturer and based on the soil test results.
- Fertilizers will be worked into the soil to limit exposure to storm water.
- Fertilizers will be stored in a covered shed and partially used bags will be transferred to a sealable bin to avoid spills.
- All vehicles on site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Spill kits will be included with all fueling sources and maintenance activities.
- Any asphalt substances used on-site will be applied according to the manufacturer's recommendation.
- Sanitary waste will be collected from portable units a minimum of two times a week to avoid overfilling.
- A covered dumpster will be used for all waste materials.
- All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm system but will be properly disposed according to the manufacturers' instructions.
- Materials and equipment necessary for spill cleanup will be kept in the temporary material storage trailer on site. Equipment will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, saw dust, and plastic and metal trash containers.
- Spray guns will be cleaned on a removable tarp.
- Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site, unless discharged to an engineered containment system. The Engineered system must include site drawings for the project file and written assurance that the system will work as designed and leave no discharge of concrete or concrete residue potential to enter waters of the state.
- Form release oil used for decorative stone work will be applied over a pallet covered with an absorbent material to collect excess fluid. The absorbent material will be replaced and disposed of properly when saturated.

## 10) SPILL RESPONSE PROCEDURE

The permittee/operator shall immediately notify the National Response Center at (800) 424-8802 immediately upon discovery of any large spill.

# 11) INSPECTION AND MAINTENANCE

## A) DURING CONSTRUCTION

The Permittee(s) must routinely inspect the construction site once every seven days during active construction and within 24 hours after a rainfall event greater than 0.5 inches in 24 hours. The inspections and maintenance conducted must be recorded in writing and these records must be retained. Records of the inspection and maintenance activity shall include:

- Date and time of inspections
- Name of person(s) conducting inspections
- Findings of inspections, including recommendations for corrective actions
- Corrective actions taken (including dates, times, and party completing maintenance activities)
- Date and amount of all rainfall events greater than 0.5 inches in 24 hours
- Documentation of changes made to the SWPPP

Where parts of the construction site have permanent cover, but work remains on other parts of the site, inspections of the areas with permanent cover may be reduced to once per month. Where construction sites have permanent cover on all exposed soil areas and no construction activity is occurring anywhere on the site, the site must be inspected for a period of twelve (12) months (the inspections may be ceased during frozen ground conditions). Following the twelfth month of permanent cover and no construction activity, inspections may be terminated until construction activity is once again initiated or sooner if notified in writing by the MPCA. Where work has been suspended due to frozen ground conditions, the required inspections and maintenance schedule must begin within 24 hours after runoff occurs at the site or prior to resuming construction, whichever comes first.

All erosion prevention and sediment control BMP's must be inspected to ensure integrity and effectiveness. All nonfunctional BMP's must be repaired, replaced or supplemented with functional BMP's. The Permittee must investigate and comply with inspection and maintenance requirements according to Part IV.E.4 of the NPDES Phase II General Permit. The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- Built-up sediment will be removed from silt fencing when it has reached one-third the height of the fence. Silt fences will be inspected for depth of sediment, for tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground. These repairs must be made within 24 hours of discovery, or as soon as field conditions allow access.
- Temporary and permanent seeding will be inspected for bare spots, washouts and healthy growth.
- Erosion Blankets will be inspected for tears and/or displacement and to make sure it remains securely fasten to the ground.
- The stabilized construction entrance will be inspected for sediment tracked on the road, for clean gravel and to make sure that the culvert beneath the entrance is working and that all traffic use the stabilized entrance when leaving the site.

If construction activities or design modifications are made to the site plan which could impact storm water, this SWPPP will be amended appropriately. The amended SWPPP will have a description of the new activities that contribute to the increased pollutant leading and the planned source control activities.

**Upon completion of the project, the contractor shall be responsible for removing all sediment contained in the catch basins and in the underground detention chamber system.**

### B) POST CONSTRUCTION (LONG TERM)

The Duluth Airport Authority (DAA) will be responsible for long term inspection and maintenance of the Stormwater Management and conveyance system. Responsibility will be transferred from the contractor to the DAA after submittal of the Notice of Termination to the MPCA.

The DAA will be required to routinely inspect the systems (at least annually) for buildup of sediment in catch basins and underground detention system, and for signs of erosion at discharge points of the system.

The DAA shall perform maintenance of the underground detention systems at least annually. Maintenance shall be in accordance with manufacturers recommendations/requirements.

The inspections and maintenance conducted on the system must be recorded in writing and these records must be kept on file for a period of seven years.

## 12) FINAL STABILIZATION

The Permittee must ensure final stabilization of the site. The Permittee must submit a Notice of Termination within 30 days after final stabilization is achieved and all land disturbing construction activities are complete complete. Final stabilization is measured according to Parts IV.G.1-5 or Part IV.G.6: of the NPDES Phase II General Permit.

## 13) RECORD KEEPING AND REPORTING

The SWPPP, all changes to it and inspections and maintenance records must be kept on the site for the site for the duration of construction by the Permitee who has operational control of that portion of the site. The SWPPP and records shall be made available to federal, state or local officials upon request. Owner(s) shall keep the SWPPP along with any additional records on file for three (3) years after submittal of the Notice of Termination (NOT) as outlined in Part III.D of the NPDES Phase II General Permit. This does not include any records after submittal of the Notice of Termination.

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**STATEMENT OF ESTIMATED QUANTITIES**

| BID ITEM | SPEC REF | ITEM DESCRIPTION | UNIT | ESTIMATED QUANTITY | UNIT COST | TOTAL COST |
|---|---|---|---|---|---|---|
| 1 | P-100-4.1 | MOBILIZATION AND GENERAL CONDITIONS | LS | 1 | | |
| 2 | P-102-10.1 | SAFETY AND SECURITY | LS | 1 | | |
| 3 | P-104-5.1 | PROJECT SURVEY AND STAKEOUT | LS | 1 | | |
| 4 | P-107-4.1 | BITUMINOUS PAVEMENT DEMOLITION (FULL DEPTH) | SY | 2850 | | |
| 5 | P-109-5.1 | SAWING BITUMINOUS CONCRETE PAVEMENT | LF | 280 | | |
| 6 | P-151-4.3 | CLEARING AND GRUBBING | ACRES | 0.75 | | |
| 7 | P-152-4.1 | UNCLASSIFIED EXCAVATION (WLSSD DISPOSAL) | CY | 148920 | | |
| 8 | P-152-4.2 | ROCK EXCAVATION | CY | 2500 | | |
| 9 | P-154-6.1 | SUBBASE COURSE (7% MODIFIED, C.I.P.) | CY | 19500 | | |
| 10 | P-209-5.1 | CRUSHED AGGREGATE BASE (C.I.P) | CY | 4400 | | |
| 11 | P-401-8.1 | BITUMINOUS - WEARING COURSE | TON | 1875 | | |
| 12 | P-401-8.2 | BITUMINOUS - NON WEARING COURSE | TON | 3725 | | |
| 13 | P-603-5.1 | BITUMINOUS TACK COAT | GAL | 3050 | | |
| 14 | P-620-5.1 | PAVEMENT MARKINGS WITH TYPE 3 BEADS | SF | 650 | | |
| 15 | F-162-5.1 | FENCE DEMOLITION | LF | 1050 | | |
| 16 | F-162-5.2 | CHAIN LINK FENCE (10' HEIGHT) WITH BARBED WIRE | LF | 875 | | |
| 17 | F-162-5.3 | CHAIN LINK FENCE (6' HEIGHT) WITH BARBED WIRE | LF | 900 | | |
| 18 | T-905-5.1 | TOPSOILING (OBTIANED OFFSITE) | CY | 4500 | | |
| 19 | L-105-5.1 | REMOVE/DEMOLITION TAXIWAY EDGE LIGHT AND BASE | EACH | 1 | | |
| 20 | L-108-5.1 | 1/C #8, 5KV, TYPE L-824C, CABLE, DUCT OR CONDUIT | LF | 1160 | | |
| 21 | L-108-5.2 | 1/C #6 EQUIPMENT GROUND INSTALLED IN DUCT OR CONDUIT | LF | 1100 | | |
| 22 | L-108-5.3 | 1/C #6 BARE COPPER COUNTERPOISE W/ GROUND RODS AND GROUND CONNECTORS | LF | 820 | | |
| 23 | L-110-5.1 | 2-WAY, 4" PVC CONDUIT, SCHEDULE 40, CONCRETE ENCASED | LF | 240 | | |
| 24 | L-110-5.2 | 2-WAY, 4" PVC CONDUIT, SCHEDULE 40, DIRECT-BURIED | LF | 1250 | | |
| 25 | L-110-5.3 | CONCRETE ENCASE EXISTING 4-WAY, 4" PVC DUCT | LF | 130 | | |
| 26 | L-110-5.4 | 2- WAY, 4" PVC COATED GRS CONDUIT | LF | 130 | | |
| 27 | L-110-5.5 | 2" PVC CONDUIT, SCHEDULE 40, DIRECT-BURIED | LF | 856 | | |
| 28 | L-121-5.1 | INSTALL TAXIWAY ELEVATED EDGE LIGHT AND BASE - (LED LAMP) | EACH | 18 | | |
| 29 | L-123-5.1 | L-858 AIRFIELD GUIDANCE SIGN AND BASE | EACH | 3 | | |
| 30 | 2104.501 | REMOVE 18" CMP | LF | 24 | | |
| 31 | 2104.501 | REMOVE 24' CMP | LF | 66 | | |
| 32 | 2105.521 | SELECT GRANULAR BORROW MOD 7% (CV) | CY | 9100 | | |
| 33 | 2105.604 | GEOTEXTILE FABRIC TYPE V | SY | 32200 | | |
| 34 | 2211.503 | AGGREGATE BASE, CLASS 5 (CV) | CY | 2100 | | |
| 35 | 2360.501 | TYPE (SP12.5) WEARING COURSE MIX (3,C) | TON | 1175 | | |
| 36 | 2360.502 | TYPE (SP12.5) NON-WEARING COURSE MIX (3,C) | TON | 2000 | | |
| 37 | 2221.503 | AGGREGATE SHOULDERING, (CV) CLASS 1 | CY | 175 | | |
| 38 | 2451.501 | STRUCTURE EXCAVATION CLASS R | CYD | 60 | | |
| 39 | 2501.511 | 12" RC PIPE CULVERT CLASS V | LFT | 568 | | |
| 40 | 2501.511 | 12" CORRUGATED HDPE PIPE CULVERT | LFT | 254 | | |
| 41 | 2501.511 | 24" CORRUGATED HDPE PIPE CULVERT | LFT | 64 | | |
| 42 | 2501.515 | 12" RC PIPE APRON | EACH | 4 | | |
| 43 | 2501.515 | 12" GALVANIZED STEEL PIPE APRON | EACH | 8 | | |
| 44 | 2501.515 | 24" GALVANIZED STEEL PIPE APRON | EACH | 2 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 45 | 2502.541 | 4" PERFORATED (PVC) PIPE UNDERDRAIN SDR 35 | LFT | 3443 | | |
| 46 | 2503.511 | 12" CORRUGATED HDPE PIPE SEWER | LFT | 214 | | |
| 47 | 2503.511 | 15" CORRUGATED HDPE PIPE SEWER | LFT | 176 | | |
| 48 | 2503.511 | 18" CORRUGATED HDPE PIPE SEWER | LFT | 350 | | |
| 49 | 2503.511 | 24" CORRUGATED HDPE PIPE SEWER | LFT | 361 | | |
| 50 | 2503.511 | 30" CORRUGATED HDPE PIPE SEWER | LFT | 170 | | |
| 51 | 2503.511 | 8" PVC SEWER – SDR35 – SANITARY SEWER | LFT | 772 | | |
| 52 | 2503.573 | INSTALL 8 IN X 6 IN WYE | EACH | 2 | | |
| 53 | 2503.573 | INSTALL 30" GALVANIZED STEEL APRON SECTION | EACH | 1 | | |
| 54 | 2503.603 | DURASLOT (18") SURFACE DRAINS W/GRATES, FITTINGS, (VARIABLE HEIGHT) | LFT | 660 | | |
| 55 | 2503.602 | CONNECT TO EXISTING SANITARY MANHOLE | EACH | 1 | | |
| 56 | 2504.602 | REMOVE EXISTING HYDRANT | EACH | 1 | | |
| 57 | 2504.602 | FURNISH AND INSTALL HYDRANT ASSEMBLY | EACH | 2 | | |
| 58 | 2504.602 | FURNISH AND INSTALL 10" GATE VALVE AND BOX | EACH | 2 | | |
| 59 | 2504.603 | 10" HDPE WATER MAIN SDR-11 | LFT | 194 | | |
| 60 | 2504.603 | 10" HDPE WATER MAIN SDR-11 (DIRECTIONALLY DRILLED) | LFT | 40 | | |
| 61 | 2504.604 | 3 IN POLYSTYRENE INSULATION | SY | 160 | | |
| 62 | 2504.608 | WATER MAIN FITTINGS | LBS | 620 | | |
| 63 | 2506.502 | CONSTRUCT DRAINAGE STRUCTURE DESIGN G | EACH | 4 | | |
| 64 | 2506.502 | CONSTRUCT DRAINAGE STRUCTURE DESIGN F | EACH | 2 | | |
| 65 | 2506.502 | CONSTRUCT DRAINAGE STRUCTURE DESIGN 60 – 4020 | EACH | 2 | | |
| 66 | 2506.502 | CONSTRUCT DRAINAGE STRUCTURE DESIGN 72 – 4020 | EACH | 1 | | |
| 67 | 2506.502 | CONSTRUCT DRAINAGE STRUCTURE DESIGN 4007 | EACH | 4 | | |
| 68 | 2511.501 | RANDOM RIPRAP CLASS III | CYD | 100 | | |
| 69 | 2531.501 | CONCRETE CURB AND GUTTER D424 | LFT | 500 | | |
| 70 | 2531.501 | CONCRETE CURB AND GUTTER B624 | LFT | 170 | | |
| 71 | 2550.512 | QUAZITE CAT. NO. PG 2436BB36 ELECTRICAL HANDHOLE W/ PG2436HA00 LID OR APPROVED EQUAL | EACH | 6 | | |
| 72 | 2564.537 | INSTALL SIGN TYPE A, STOP SIGN, R1-1 (COMPLETE WITH POST) | EACH | 4 | | |
| 73 | 2573.501 | BALE BARRIER | LFT | 200 | | |
| 74 | 2573.502 | SILT FENCE TYPE MACHINE SLICED | LFT | 3100 | | |
| 75 | 2573.502 | SILT FENCE TYPE HEAVY DUTY | LFT | 470 | | |
| 76 | 2573.530 | STORM DRAIN INLET PROTECTION | EACH | 6 | | |
| 77 | 2573.540 | FILTER LOG TYPE STRAW BIOROLL | LFT | 470 | | |
| 78 | 2573.550 | EROSION CONTROL SUPERVISOR | LUMP SUM | 1 | | |
| 79 | 2573.601 | STORM CHAMBER SYSTEM | LUMP SUM | 1 | | |
| 80 | 2573.604 | ROCK CONSTRUTION ENTRANCE | SY | 990 | | |
| 81 | 2575.501 | SEEDING | ACRE | 9.33 | | |
| 82 | 2575.502 | SEED MIXTURE 250 | LBS | 1200 | | |
| 83 | 2575.523 | EROSION CONTROL BLANKET CATEGORY 3 | SY | 14000 | | |
| 84 | 2575.523 | EROSION CONTROL BLANKET CATEGORY 4 | SY | 2500 | | |
| 85 | 2575.532 | FERTILIZER TYPE 3 10-10-10 | LBS | 3750 | | |
| 86 | 2575.560 | HYDRAULIC SOIL STABILIZER, TYPE 6 | LBS | 12500 | | |
| 87 | 2575.570 | RAPID STABILIZATION METHOD 1 | ACRE | 9.33 | | |
| 88 | 2575.601 | WETLAND RESTORATION | LS | 1 | | |
| 89 | SP-35.3 | LIGHT POLE WITH FIXTURE | EACH | 1 | | |
| 90 | SP-36.3 | SITE POWER ALLOWANCE | AL | 1 | | |
| 91 | SP-37.3 | SITE COMMUNICATIONS ALLOWANCE | AL | 1 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 92 | SP-38.3 | EDA JOB SIGN | LS | 1 | | |
| 93 | SP-39.3 | INSTALL VEHICLE DETECTOR LOOP | LS | 1 | | |

TOTAL BASE BID _____

**ADD ALTERNATE #1 - INCREASE BITUMINOUS PAVEMENT THICKNESS 2" FOR APRON/TAXILANE**

| BID ITEM | SPEC REF | ITEM DESCRIPTION | UNIT | ESTIMATED QUANTITY | | |
|---|---|---|---|---|---|---|
| 94 | P-152-4.1 | UNCLASSIFIED EXCAVATION | CY | 874 | | |
| 95 | P-401-8.1 | BITUMINOUS WEARING COURSE | TON | 1838 | | |

TOTAL ALTERNATE #1 _____

**ADD ALTERNATE #2 - CONSTRUCT 20' BITUMINOUS SHOULDERS ON TAXILANE**

| BID ITEM | SPEC REF | ITEM DESCRIPTION | UNIT | ESTIMATED QUANTITY | | |
|---|---|---|---|---|---|---|
| 96 | P-152-4.1 | UNCLASSIFIED EXCAVATION | CY | 850 | | |
| 97 | P-154-6.1 | SUBBASE COURSE (7% MODIFIED (C.I.P.) | CY | 1250 | | |
| 98 | P-209-5.1 | CRUSHED AGGREGATE BASE (C.I.P) | CY | 300 | | |
| 88 | 2360.501 | TYPE (SP12.5) WEARING COURSE MIX (3,C) | TON | 195 | | |
| 100 | 2360.502 | TYPE (SP12.5) NON-WEARING COURSE MIX (3,C) | TON | 195 | | |
| 101 | 2105.604 | GEOTEXTILE FABRIC TYPE V | SY | 1025 | | |

TOTAL ALTERNATE #2 _____

**ADD ALTERNATE #3 - INCREASE IN UNIT COST FOR OFFISTE DISPOSAL**

| BID ITEM | SPEC REF | ITEM DESCRIPTION | UNIT | ESTIMATED QUANTITY | | |
|---|---|---|---|---|---|---|
| 102 | P-152-4.3 | UNCLASSIFIED EXCAVATION (OFFSITE DISPOSAL) | CY | 150644 | | |

TOTAL ALTERNATE #3 _____