

BID ITEM	SPEC REF	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	RECORD QUANTITY
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	0.075	
7	P-152 -4.1	UNCLASSIFIED EXCAVATION (WLSO DISPOSAL)	CY	148920	
8	P-152 -4.2	ROCK EXCAVATION (OFFSITE DISPOSAL)	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 CONSTRUCTION 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	LS	1	
91	SP-37.3	SITE COMMUNICATIONS ALLOWANCE	LS	1	
92	SP-38.3	EDA JOB SIGN	LS	1	
93	SP-39.3	INSTALL VEHICLE DETECTOR LOOP	LS	1	

ADD ALTERNATE #1 - INCREASE BITUMINOUS PAVEMENT THICKNESS 2" FOR APRON/TAXILANE					
BID ITEM	SPEC REF	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	RECORD QUANTITY
94	P-152-4.1	UNCLASSIFIED EXCAVATION	CY	874	
95	P-401-8.1	BITUMINOUS WEARING COURSE	TON	1838	
ADD ALTERNATE #2 - CONSTRUCT 20' BITUMINOUS SHOULDERS ON TAXILANE					
BID ITEM	SPEC REF	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	RECORD 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	
99	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	
ADD ALTERNATE #3 - INCREASE IN UNIT COST FOR OFFSITE DISPOSAL					
BID ITEM	SPEC REF	ITEM DESCRIPTION	UNIT	ESTIMATED QUANTITY	RECORD QUANTITY
102	P-152-4.3	UNCLASSIFIED EXCAVATION (OFFSITE DISPOSAL)	CY	150644	

GENERAL NOTES

- THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF ALL APPLICABLE FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULARS, STANDARDS AND RECOMMENDATIONS FOR AIRPORT DESIGN, INCLUDING: 150/5370-10C, STANDARDS SPECIFYING CONSTRUCTION OF AIRPORTS.
- SAFETY AND SECURITY - SAFETY AND SECURITY IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE COORDINATED WITH DULUTH INTERNATIONAL AIRPORT AND THE ENGINEER (SEE SPECIAL PROVISION SPECIFICATIONS).
- EXISTING UTILITY INFORMATION SHOWN ON THE PLANS CONCERNING THE TYPE, SIZE AND LOCATION WERE COMPILED BASED ON THE BEST AVAILABLE UTILITY RECORDS TO THE ENGINEER. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION PRIOR TO CONSTRUCTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOWER AND/OR PROTECT ALL EXISTING UTILITIES IN PLACE UNLESS NOTED OR SPECIFIED OTHERWISE INCIDENTAL TO THIS PROJECT. ANY DAMAGE TO EXISTING UTILITIES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL FIELD VERIFY AND SOFT DIG TO IDENTIFY ACTUAL LOCATION AND DEPTH PRIOR TO REMOVAL AND EXCAVATION FOR ALL UTILITIES BOTH WET AND DRY.
- CONTRACTOR UTILITIES - THE CONTRACTOR'S STAGING AREA IS SHOWN ON SHEET C005. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL UTILITIES AND HOOKUPS (SEE SPECIAL PROVISIONS). THE CONTRACTOR WILL BE REQUIRED TO COORDINATE WITH THE CITY ENGINEERING DEPARTMENT AND DULUTH INTERNATIONAL AIRPORT ON THE PRECISE LOCATION AND LIMITS OF THE STAGING AREA, AS WELL AS ANY SPECIAL REQUIREMENTS FOR FENCING, SECURITY BADGING AND ACCESSSES.
- IN ORDER TO ALLOW THE AVIATION DEPARTMENT TO ISSUE A TIMELY "NOTAM" ALERTING PILOTS OF CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT A MINIMUM OF 48 HOURS BEFORE HAND TO OBTAIN CLEARANCE FOR WORK AND/OR ACTIVITY WITHIN SAFETY AREAS OF TAXIWAY 'B'. ANY WORK IN SAFETY AREA OF TAXIWAY 'B' WILL REQUIRE CLOSURE OF THE TAXIWAY. THE CONTRACTOR SHALL SUBMIT A PRELIMINARY PLAN AT THE PRECONSTRUCTION CONFERENCE DETAILING THE METHOD AND APPROXIMATE TIME FRAME HE/SHE PROPOSES TO ACCOMPLISH THE REQUIRED WORK.
- HAUL ROUTES - THE LOCATION OF HAUL ROUTES ON THE AIRPORT SHALL BE AS SHOWN ON THE PLANS AND APPROVED BY THE CITY OF DULUTH AND THE DULUTH INTERNATIONAL AIRPORT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE OFF-SITE HAUL ROUTES WITH THE PARTY HAVING JURISDICTION OVER THE AFFECTED ROUTE. ON-SITE HAUL ROUTES WILL BE MAINTAINED BY THE CONTRACTOR AND SHALL BE RESTORED TO THEIR ORIGINAL CONDITION UPON COMPLETION OF USE AS A HAUL ROUTE. FENCING, DRAINAGE, GRADING, AND ANY OTHER WORK NECESSARY TO CONSTRUCT HAUL ROUTES ON THE AIRPORT IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE APPROVED BY THE ENGINEER PRIOR TO WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PRESERVATION OF ALL DULUTH INTERNATIONAL AIRPORT PROPERTY AND SHALL PROTECT CAREFULLY FROM DAMAGE OR DISTURBANCE ALL LAND MONUMENTS AND PROPERTY MARKERS. IF DAMAGE OR INJURY TO PROPERTY DOES OCCUR DURING THE WORK, THE CONTRACTOR SHALL RESTORE AT HIS/HER OWN EXPENSE SUCH PROPERTY TO A CONDITION EQUAL TO THAT EXISTING BEFORE SUCH DAMAGE OR INJURY WAS DONE.
- EXCESS SOIL PLACEMENT SHALL BE OFF-SITE IN A CITY APPROVED LOCATION AND SHALL ADHERE TO ALL LOCAL LAWS AND REGULATIONS. COSTS ASSOCIATED WITH THE PLACEMENT AT THIS LOCATION SHALL BE INCLUDED IN THE COST OF REMOVAL. THE CONTRACTOR SHALL PROVIDE THE RESIDENT ENGINEER AND DULUTH INTERNATIONAL AIRPORT WITH DOCUMENTATION OF THE QUANTITY OF PLACEMENT, LOCATION AND CITY/LOCAL GOVERNMENT ACCEPTANCE.
- ANY REMOVAL ITEMS OF VALUE, FENCING AND SIGNS, ARE TO REMAIN THE PROPERTY OF DULUTH INTERNATIONAL AIRPORT UNLESS INDICATED OTHERWISE.
- THE CONTRACTOR SHALL NOT ENTER INTO ANY PAVED OR UNPAVED AREA OUTSIDE OF THE LIMITS OF CONSTRUCTION WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
- DURING TIMES OF OPERATIONS, A BADGED GATE GUARD PROVIDED BY THE CONTRACTOR SHALL BE PLACED AT GATE #140V. THE GUARD SHALL CHECK FOR ENTRY UNDER THE SPECIAL PROVISIONS AND THE LATEST FAA SAFETY REGULATIONS. PROPER TRAINING AND COORDINATION WITH AIRPORT OPERATIONS WILL BE REQUIRED.
- CONTRACTOR TO REPAIR DAMAGE TO HAUL ROUTES ON AND OFF AIRPORT PROPERTY UPON COMPLETION OF THIS PROJECT. (INCIDENTAL TO THIS PROJECT).
- CONTRACTOR SHALL SUBMIT A PLAN (PRIOR TO CONSTRUCTION) FOR CONSTRUCTION NEXT TO THE PHASE LIMITS. THIS PLAN SHALL SHOW SUFFICIENT REMOVAL OF AC TO PLACE REQUIRED CONCRETE/ASPHALT FOR EACH PHASE. IT SHALL ALSO SHOW WHAT STEPS WILL BE TAKEN WHEN VEHICLES/EQUIPMENT ARE REQUIRED TO BE TURNED AROUND AND HAVE PASSED THE AREA OF PAVING. IT WILL ALSO SHOW WHERE EQUIPMENT IS TO BE STORED IN EACH PHASE.
- SHOULD ANY ITEM IN THESE PLANS CONFLICT WITH THE TECHNICAL SPECIFICATIONS, THE SPECIFICATIONS SHALL GOVERN.

ABBREVIATIONS

AB	AGGREGATE BASE COURSE
AC	ADVISORY CIRCULAR OR ASPHALTIC CONCRETE
APPROX	APPROXIMATE
ARFF	AIRCRAFT RESCUE FIRE FIGHTING
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ATCT	AIR TRAFFIC CONTROL TOWER
BC	BEGIN CURVE
BVC	BEGIN VERTICAL CURVE
CFS	CUBIC FEET PER SECOND
CTB	CEMENT TREATED BASE
CY	CUBIC YARDS
DAA	DULUTH AIRPORT AUTHORITY
DIA	DIAMETER
E	EASTING, ELECTRICAL OR EAST
EA	EACH
EC	END CURVE
EL	ELEVATION
EVC	END VERTICAL CURVE
EXIST	EXISTING
FAA	FEDERAL AVIATION ADMINISTRATION
FH	FIRE HYDRANT
FL	FLOWLINE
G	GAS
GA	GAUGE
GAL	GALLON
HP	HIGH POINT
ILS	INSTRUMENT LANDING SYSTEM
KV	KILOVOLT
LF	LINEAR FEET
LS	LUMP SUM
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
N	NORTHING OR NORTH
NAVD	NORTH AMERICAN VERTICAL DATUM
NO	NUMBER
NOTAM	NOTICE TO AIRMEN
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PAPI	PRECISION APPROACH PATH INDICATOR
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PROP	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
RGRC	RUBBER GASKET REINFORCED CONCRETE PIPE
R	RADIUS
RT	RIGHT
R/W	RUNWAY
ROW	RIGHT-OF-WAY
RWY	RUNWAY
S	SLOPE OR SOUTH
SF	SEMI-FLUSH OR SQUARE FEET
STA	STATION
STD	STANDARD
SY	SQUARE YARDS
TWY	TAXIWAY
T/W	TAXIWAY
TYP	TYPICAL
VASI	VISUAL APPROACH SLOPE INDICATOR
VERT	VERTICAL
W	WEST OR WATER



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NORTH BUSINESS DEVELOPMENT AREA

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 *Darren K. Christopher*
Typed Name DARREN K. CHRISTOPHER
Date 08/18/2009 Reg. No. 45052

REVISIONS		
NO.	DESCRIPTION	DATE

DATE ISSUED: 08-18-2009
REVIEWED BY, MLS
DRAWN BY, JKE
DESIGNED BY, DKC
AEP PROJECT NUMBER
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SHEET TITLE SUMMARY OF QUANTITIES, GENERAL NOTES, & ABBREVIATIONS

SHEET NUMBER
C002
**BID
DOCUMENTS**