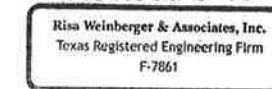


Part III

FCC Materials Recovery Facility Houston
Houston, Texas
Harris County, Texas
Part III
Site Development Plan

Version 1 – Response to First NOD
Revised 8-15-18



Risa Weinberger, P.E.
8-15-18

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Texas Registered Engineering Firm
P-7861



Risa Weinberger P.E.
8-15-10

Part III

Part III – Site Development Plan

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Part III – Site Development Plan

1.0 General Facility Design

1.1 Access Control [30TAC330.63(b)(1)]

Access to the site will be controlled to prevent unauthorized access, illegal dumping, vandalism, delivery of unauthorized materials, and public exposure to hazards. Individual residents will not deliver recyclable materials into the MRF building. They will drive around the perimeter of the property to a citizen tipping area near the east end of the northern edge of the site.

Vehicles will access the facility from Roundhouse Lane on the west perimeter of the site. The facility will have one one-way entrance, one one-way exit, and one two-way entrance/exit accessing a parking lot. Access to the facility will be controlled by locking gates. Figure III.1 is a Site Plan which depicts the facility layout including the locking gates. In addition, the facility will have security cameras at various locations inside the MRF building and around the exterior.

1.2 Process Design [30TAC330.63(b)(2)(A-D)]

Figure III.2 is a Schematic Flow Diagram illustrating storage, processing and disposal sequences of each of the materials received. Each of the yellow ovals in the schematic represents a product or waste material that is stored at the facility. Waste materials include trash, residue and fines. All other materials are products. The materials recovery process is illustrated in the diagram by designating material flow through the various manual and automated separation processes.

Ventilation will be carefully controlled inside the materials processing building to control dust and odors for all employees. Every individual area where employees manually separate materials or provide quality control, referred to as a “pod”, will be enclosed and provided with filtered air and climate control. No processing of any kind will take place outdoors so no dust or odors are expected to be generated outdoors. Air filtration equipment will be maintained according to manufacturers’ recommendations to ensure that it functions properly to remove dust and odors from the interior air and prevent the discharge of dust and odors to the outside.

Table III.1 - Processing Equipment List is a list of major processing units in the facility. Each item name in the list is followed by a link to a web site for the

Part III

supplier of that item. Attachment III.1 – Equipment General Specifications includes general specifications for the major equipment in the facility.

All parts are given two layers of corrosion resistant coating. The first layer is a corrosion-resistant primer based on zinc-phosphate. The second layer is a hard, water-based paint, RAL 6024 (traffic green). All protective components are painted RAL 1021 (cadmium yellow). The coating is an average of 75 microns thick. Other unpainted parts, such as shafts are treated for transport with a corrosion-resistant produce such as grease or Vaseline. Plating receives a preliminary treatment of an environmentally friendly degreasing product.

FCC will continually review advancements in materials processing equipment and techniques. Equipment and processes may be updated or replaced as required to maintain product quality and efficiencies.

PROJECT TITLE

FOMENTO DE
CONSTRUCCIONES Y
CONTRATAS INC



HOUSTON MATERIALS
RECYCLING FACILITY
9172 LEY RD. HOUSTON, TX 77078

GENERAL NOTES

- SITE AREA : 10.8 ACRES (471,653 SF)
- BUILDING AREA : 117,455 SF
- PARKING REQUIREMENTS:
1 SPACE / 5,000 SF WH - 21 REQ.
1 SPACE / 250 SF OFFICE - 84 REQ.
TOTAL PARKING REQUIRED: 105
- PARKING PROVIDED: 113 SPACES
GARBAGE TRUCK PARKING: 40 SPACES

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Texas Registered Engineering Firm
No. 56680



Risa Weinberger
8-15-18
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DATE	REVISION

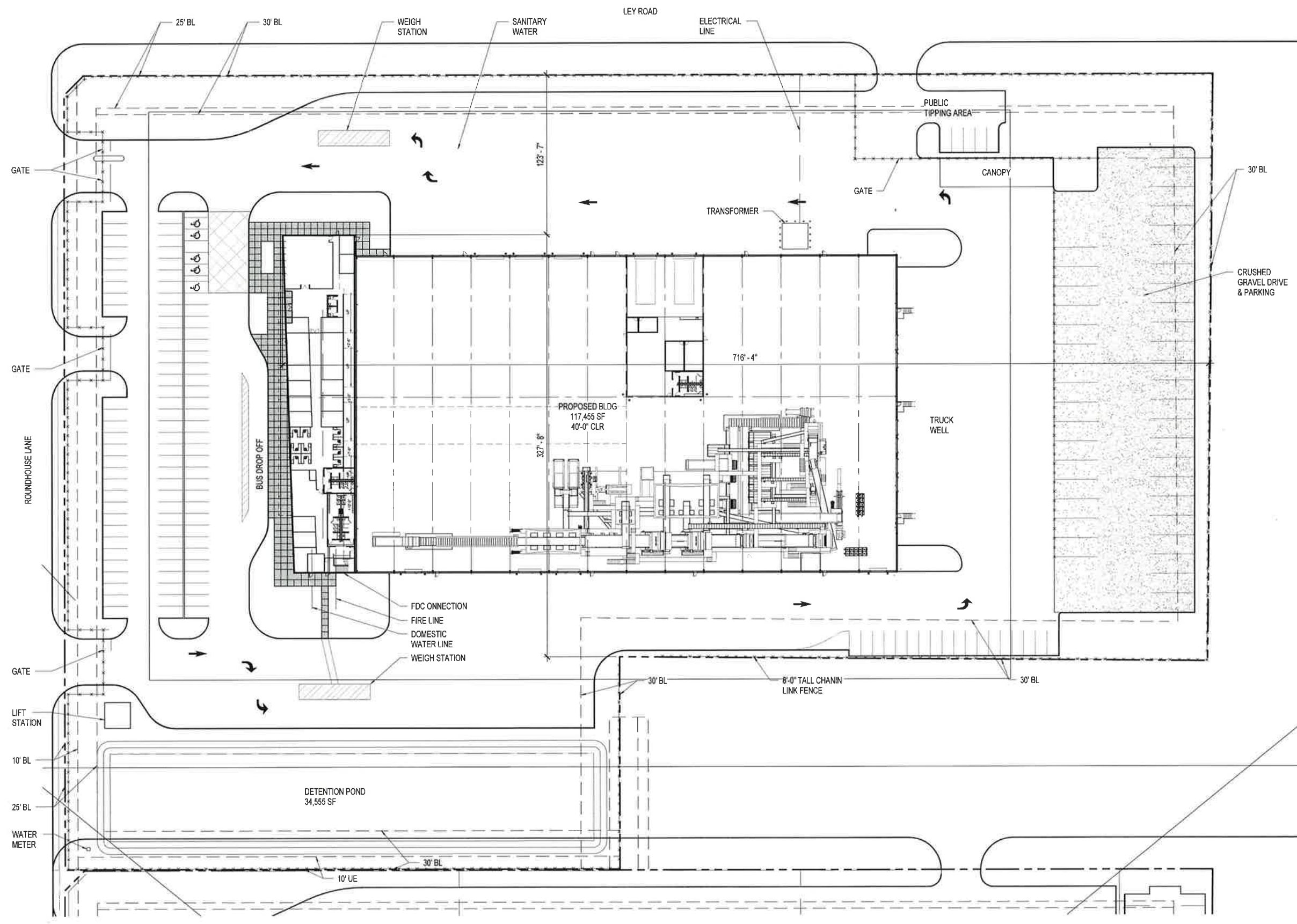
PROJECT NO: 161282
DRAWN BY: SD/TT
CHECKED BY: NK

SHEET TITLE
FIRE MARSHAL PLAN

SEAL SHEET NUMBER

JEFFREY B. BROWN
REGISTERED ARCHITECT
PRELIMINARY
NOT FOR CONSTRUCTION PERMIT
OR REGULATORY APPEAL
CURRENT AS OF:
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FIGURE II.1



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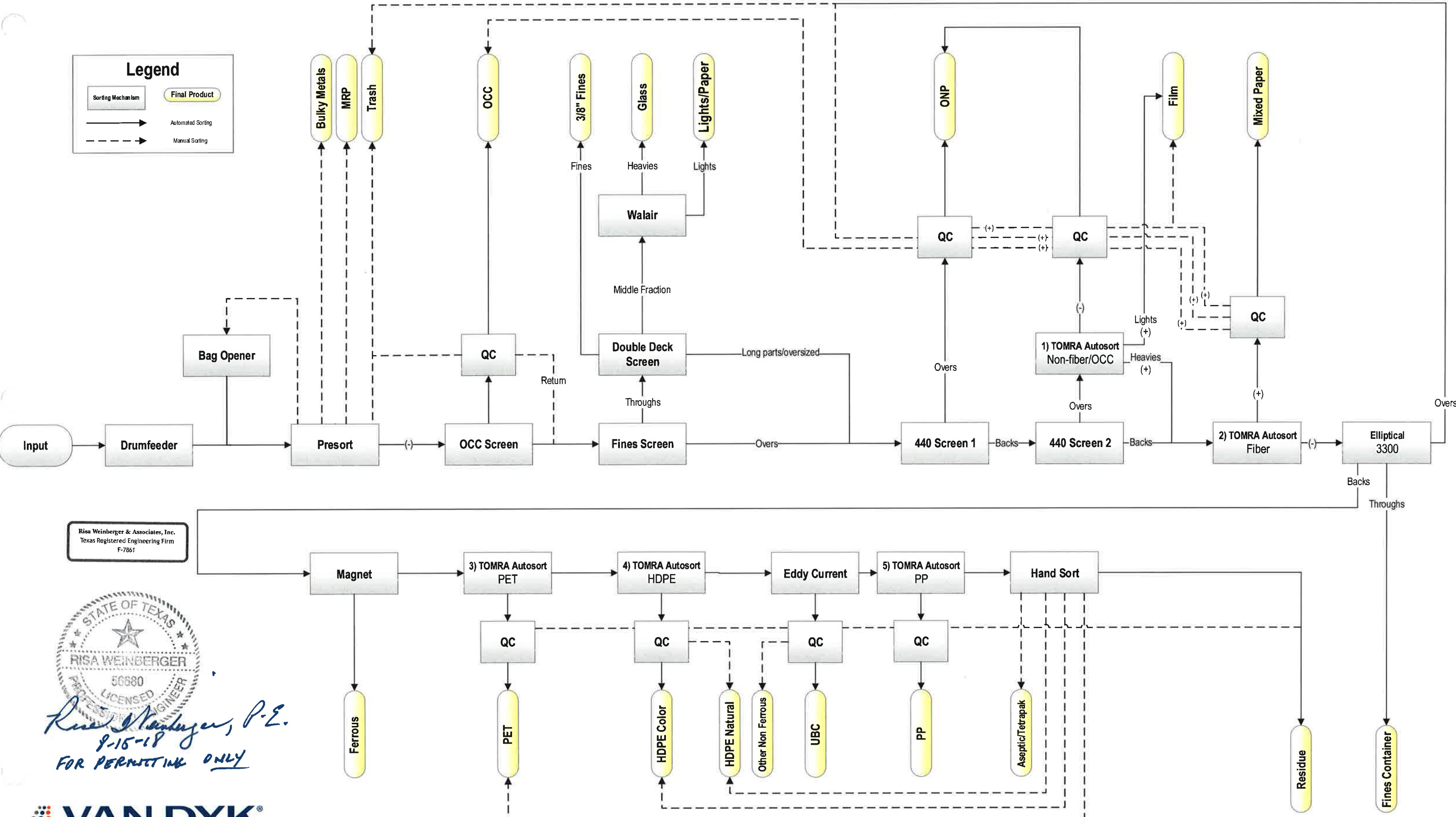
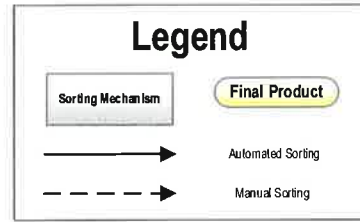
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OVERALL SITE PLAN
SCALE: 1" = 40'-0"

III-3

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FCC Houston Residential Single Stream



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FIGURE II.2
VERSION 1
REV. 9-15-18

Table III.1 – Processing Equipment List

Phase	Position	Description	Type	Supplier	Website
TBD	900	Baler, HBC 120S/80kW	Baler	BRM	http://www.bollegraaf.com
1	890	Incline conveyor HBC120S HBT1200/2000*28300	HBT1216	BRM	http://www.bollegraaf.com
1	860	Incline conveyor HBT1200/2000*19000	HBT1216	BRM	http://www.bollegraaf.com
1	880	Reversible Conveyor HBT1200/1800*21100	HBT1216	BRM	http://www.bollegraaf.com
1	850	Reversible Conveyor HBT1200/1800*21100	HBT1216	BRM	http://www.bollegraaf.com
2	830	Fixed bin PP - 52 m3	Slanted floor bin	BRM	http://www.bollegraaf.com
2	820	Fixed bin HDPE clear - 52 m3	Slanted floor bin	BRM	http://www.bollegraaf.com
2	810	Fixed bin HDPE coloured - 52 m3	Slanted floor bin	BRM	http://www.bollegraaf.com
2	800	Fixed bin Al - 52 m3	Slanted floor bin	BRM	http://www.bollegraaf.com
2	780	Fixed bin PET - 80 m3	Slanted floor bin	BRM	http://www.bollegraaf.com
2	760	Bunker belt film HBT1200/2000*10500	HBT1216	BRM	http://www.bollegraaf.com
2	770	Fixed bin Fe - 52 m3	Slanted floor bin	BRM	http://www.bollegraaf.com
3	840	Quality control platform	Platform	BRM	http://www.bollegraaf.com
3	680	Transfer conveyor HBGT250/600*20900	HBGT250	BRM	http://www.bollegraaf.com
3	660	Quality control conveyor Aseptic/Recovery HBGT250/600*15400	HBGT250	BRM	http://www.bollegraaf.com
3	640	Quality control conveyor 3-7 HBGT250/600*12750	HBGT250	BRM	http://www.bollegraaf.com
3	650	Transfer conveyor HBGT250/600*9900	HBGT250	BRM	http://www.bollegraaf.com
3	590	Quality control conveyor HDPE HBGT250/600*12760	HBGT250	BRM	http://www.bollegraaf.com
3	610	Quality control conveyor Aluminium HBGT250/600*12750	HBGT250	BRM	http://www.bollegraaf.com
3	530	Transfer conveyor HBGT250/600*20900	HBGT250	BRM	http://www.bollegraaf.com
3	560	Quality control conveyor PET HBGT250/600*12900	HBGT250	BRM	http://www.bollegraaf.com
4	670	Maintenance platform	Platform	BRM	http://www.bollegraaf.com
4	630	TITECH single-valve isolation box/1000	Optical	BRM	http://www.bollegraaf.com
4	620	Feed conveyor Titech HBGT250/1000*8400	HBGT250	BRM	http://www.bollegraaf.com
4	600	Eddy Current HBM 29.724/12/B-1000	Eddy Current	Bakker	https://bakkermagnetics.com/en
4	580	TITECH single-valve isolation box/1400	Optical	BRM	http://www.bollegraaf.com
4	570	Feed conveyor Titech HBGT250/1400*8400	HBGT250	BRM	http://www.bollegraaf.com
4	550	TITECH single-valve isolation box/2000	Optical	BRM	http://www.bollegraaf.com
4	540	Feed conveyor Titech HBGT250/2000*8400	HBGT250	BRM	http://www.bollegraaf.com
4	520	Top belt magnet HBM LD500.1400.1800	Magnet	Bakker	https://bakkermagnetics.com/en
4	510	Transfer conveyor HBGT250/1400*22900	HBGT250	BRM	http://www.bollegraaf.com
5	430	Transfer conveyor HBGT250/600*21400	HBGT250	BRM	http://www.bollegraaf.com
5	420	Transfer conveyor HBGT250/600*4400	HBGT250	BRM	http://www.bollegraaf.com
5	750	Film Suction system	Air system	Wlair	http://www.wlair.com/
5	410	Maintenance platform fiber Titech and Elliptical	Platform	BRM	http://www.bollegraaf.com
5	400	Elliptical 3300x6500	Ballistic Screen	Lubo	http://www.bollegraaf.com
5	370	Transfer conveyor HBGT250/1000*32760	HBGT250	BRM	http://www.bollegraaf.com
5	360	Transfer conveyor HBGT250/1000*4900	HBGT250	BRM	http://www.bollegraaf.com
5	350	TITECH single-valve isolation box/2800	Optical	BRM/Lubo	http://www.bollegraaf.com
5	340	Feed conveyor TITECH HBGT250/2800*7400	HBGT250	BRM	http://www.bollegraaf.com
5	330	Discharge conveyor TB 3000*13000	TBM	Lubo	http://www.bollegraaf.com
5	300	Transfer conveyor HBGT250/1200*9900	HBGT250	BRM	http://www.bollegraaf.com
5	290	Transfer conveyor HBGT250/1200*4900	HBGT250	BRM	http://www.bollegraaf.com
6	320	Discharge conveyor TB 3000*12500	TBM	Lubo	http://www.bollegraaf.com
6	300	Transfer conveyor HBGT250/600*9900	HBGT250	BRM	http://www.bollegraaf.com
6	280	TITECH single-valve isolation box/2800	Optical	BRM/Lubo	http://www.bollegraaf.com
6	270	Feed conveyor TITECH HBGT250/2800*9400	HBGT250	BRM	http://www.bollegraaf.com
6	260	Maintenance platform	Platform	BRM	http://www.bollegraaf.com
6	250	ONP Screen 4040mm wide	ONP Screen	Lubo	http://www.bollegraaf.com
6	255	a column crane beside ONP	Crane	Lubo	http://www.bollegraaf.com
6	240	Discharge conveyor Unders ONP Screen TB 3000*11500	TBM	Lubo	http://www.bollegraaf.com
6	220	ONP Screen 4040mm wide	ONP Screen	Lubo	http://www.bollegraaf.com
6	225	a column crane beside ONP	Crane	Lubo	http://www.bollegraaf.com
6	210	Incline conveyor to ONP Screen TB 3000*9000	TBM	Lubo	http://www.bollegraaf.com
6	700	Bunker belt OCC HBT1200/2000*18000	HBT1216	BRM	http://www.bollegraaf.com
6	720	Bunker belt ONP HBT1200/2000*18000	HBT1216	BRM	http://www.bollegraaf.com
7	440	Transfer conveyor HBGT250/1000*36400	HBGT250	BRM	http://www.bollegraaf.com
7	380	Quality control platform Fibers	Platform	BRM	http://www.bollegraaf.com
7	680	Transfer conveyor HBGT250/1600*24900	HBGT250	BRM	http://www.bollegraaf.com
7	490	Transfer conveyor HBGT250/600*15900	HBGT250	BRM	http://www.bollegraaf.com
7	710	Transfer conveyor HBGT250/1400*14900	HBGT250	BRM	http://www.bollegraaf.com
7	845	Switchbox	MCC	BRM	http://www.bollegraaf.com
7	310	Quality control conveyor ONP HBGT250/1400*11900	HBGT250	BRM	http://www.bollegraaf.com
7	380	Quality control conveyor Mixed Papers HBGT250/1400*5400	HBGT250	BRM	http://www.bollegraaf.com
7	230	Quality control conveyor Fibers HBGT250/1400*16900	HBGT250	BRM	http://www.bollegraaf.com
8	170	Transfer conveyor HBGT250/600*13400	HBGT250	BRM	http://www.bollegraaf.com

8	200	Transfer conveyor HBGT250/600*6400	HBGT250	BRM	http://www.bollegraaf.com
8	190	Quality control platform OCC	Platform	BRM	http://www.bollegraaf.com
8	180	Quality control conveyor OCC HBGT250/1600*9400	HBGT250	BRM	http://www.bollegraaf.com
8	120	Discharge conveyor TB 3000*5500	TBM	Lubo	http://www.bollegraaf.com
8	110	Maintenance platform	Platform	BRM	http://www.bollegraaf.com
8	100	Glass breaker screen 2040*7400	Glass Screen	Lubo	http://www.bollegraaf.com
8	90	Maintenance platform OCC	Platform	BRM	http://www.bollegraaf.com
8	80	OCC screen 2540*8000	OCC Screen	Lubo	http://www.bollegraaf.com
9	160	Maintenance platform	Platform	BRM	http://www.bollegraaf.com
9	150	2 Way SS glass cleaner	Drum Separator	Walair	http://www.walair.com/
9	140	Vibrating screen/feeder	Vibrating Screen	Walair	http://www.walair.com/
9	130	Feed conveyor TB 1000*18500	TBM	Lubo	http://www.bollegraaf.com
9	40	Pre sorting platform	Platform	BRM	http://www.bollegraaf.com
9	30	Pre sort conveyor HBGT250/1800*17800	HBGT250	BRM	http://www.bollegraaf.com
9	460	Transfer conveyor HBGT250/1200*2400	HBGT250	BRM	http://www.bollegraaf.com
9	450	Transfer conveyor HBGT250/1200*18400	HBGT250	BRM	http://www.bollegraaf.com
9	20	Incline conveyor HBT1200/2000*28500	HBT1216	BRM	http://www.bollegraaf.com
9	10	Bunker belt with drum feeder BDF1200/2000*9500	Drumfeeder	BRM	http://www.bollegraaf.com
		Compressors (air supply)	Compressors	KESER	http://www.us.kaeser.com

1.3 Containment Dikes or Walls [330TAC330.63(b)(2)(F)]

Storage and processing areas, and loading and unloading areas located inside the MRF building will be protected from storm water and will not require storm water containment.

Single-stream recyclable materials delivered to the facility by collection trucks for processing will be stored on the approximately 30,000 square foot, concrete tipping floor inside the building. All materials discharged onto the tipping floor will typically be processed within twenty-four hours except materials discharged onto the floor on Saturday. These materials will be stored on the tipping floor until processing resumes at 4:00 A.M. on Monday morning. All rejected material from the tipping floor and residue from the processing line will be stored in roll-off containers and then hauled to a landfill for disposal within twenty-four hours except from Saturday until Monday. Processed materials will be stored in concrete bunkers or roll-off containers until they are baled on-site. Finished bales will be stored on concrete floors inside the building until they are loaded onto trucks and hauled to markets.

Recyclable materials delivered by individual residents will be collected and stored in water tight compactors located outdoors at the public tipping area shown on Figure III.1 Site Plan. These containers will be hauled as needed to the indoor tipping floor where materials will be deposited for processing. There will be no wash water used to clean the compactor area. The area will be swept

Part III

with a broom as needed to keep it clean. Uncontaminated storm water from the public tipping area will be directed to the detention pond via an inlet and pipe.

FCC may choose to store baled, recovered metals outdoors on some occasions if adequate space is not available to store these metals inside the building. The storage area for these materials will be on concrete. Storm water containment around this storage area will not be necessary because clean, baled metals do not pose a risk of storm water contamination.

1.4 Effluent Disposal [330TAC330.63(b)(2)(H)]

The only effluent discharged from the facility will be sanitary sewer discharges to the City of Houston sanitary sewer system. Storm water discharges will be managed under the terms of the Texas Pollutant Discharge Elimination System (TPDES) General Permit (TXR050000) and a City of Houston Stormwater Quality Management Plan. Pertinent documents are provided in Attachment III.2 Effluent Disposal and Stormwater.

1.5 Proper Cleaning and Surface Water Drainage [330TAC330.63(b)(3)(A)]

All materials processing equipment and processing areas will be cleaned daily using pressurized air rather than water in order to prevent the accumulation and discharge of large volumes of wash water. However, in the event that any liquid waste from materials being processed come in contact with the floor of the facility, that area will be washed using portable steam cleaning or washing equipment. Any liquid resulting from such activities that accumulates on the floor of the facility are expected to be of low volume and to occur only incidentally. These low-volume liquids will be disposed in a drain designed to collect such liquids and discharged to the sanitary sewer after passing through and oil/sand separator..

All materials unloading, processing and storage areas will be located inside the MRF building with the exception of materials temporarily stored in containers in the public tipping area. The only other material that might be stored outdoors could be baled metals. No surface water will come in contact with the processing or storage areas located inside the MRF building.

Part III

The facility will be constructed under the terms of TPDES General Permit TXR150000 "Primary Operator" Notice for discharges of stormwater runoff from construction sites equal to or greater than five acres, including the larger common plan of development. The Site-Specific Authorization Number is TXR15.

The facility will operate under a City of Houston Storm Water Quality Management Plan which has been incorporated by reference into the Storm Water Quality Permit required by the Ordinance for the Property, as authorized by the City of Houston on April 20, 2018. A copy of this authorization is provided in Attachment III.2. The facility will also operate under the terms of a Storm Water Pollution Prevention Plan.

1.6 Construction Materials [30TAC§330.63(b)(3)(B)]

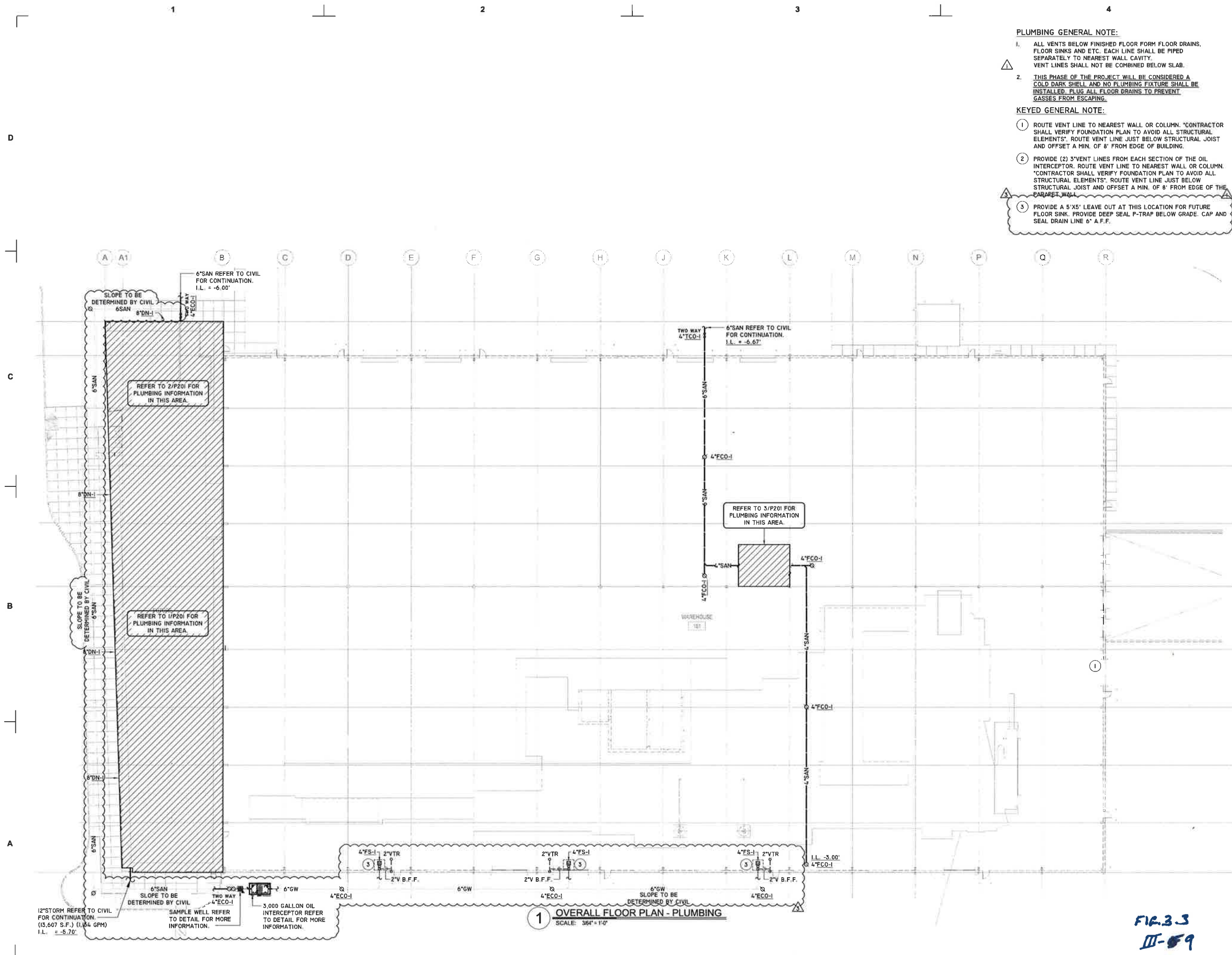
The floors and wall of the MRF building will be hard surfaces which can be washed down with water only if needed. The building walls will be metal and the floors will be concrete. Washing walls and floors with water is not part of the routine operation of the facility.

1.7 Water or Steam Connections and Equipment for Cleaning [30TAC§330.63(b)(3)(C)]

There is a water hose connection in the maintenance building to use in case needed, but the equipment and other areas within the building will be cleaned mainly using pressurized air or swept manually. . Portable steam cleaning or washing equipment will be self-contained and will not require connection to a water hydrant or steam supply in the building.

1.8 Floor Drains and Sumps [30TAC§330.63(b)(3)(D)]

There will be three drains located under the equipment as shown in Figure III-3 – Floorplan-Warehouse-Plumbing to receive any accumulated wash water or liquids resulting from incidental floor cleaning as referenced in Section 1.5. The drains will be connected to an oil/sand separator which discharge to the city sewer.



- PLUMBING GENERAL NOTE:**
- ALL VENTS BELOW FINISHED FLOOR FORM FLOOR DRAINS, FLOOR SINKS AND ETC. EACH LINE SHALL BE PIPED SEPARATELY TO NEAREST WALL CAVITY. VENT LINES SHALL NOT BE COMBINED BELOW SLAB.
 - THIS PHASE OF THE PROJECT WILL BE CONSIDERED A COLD DARK SHELL AND NO PLUMBING FIXTURE SHALL BE INSTALLED. PLUG ALL FLOOR DRAINS TO PREVENT GASSES FROM ESCAPING.
- KEYED GENERAL NOTE:**
- ROUTE VENT LINE TO NEAREST WALL OR COLUMN. *CONTRACTOR SHALL VERIFY FOUNDATION PLAN TO AVOID ALL STRUCTURAL ELEMENTS*. ROUTE VENT LINE JUST BELOW STRUCTURAL JOIST AND OFFSET A MIN. OF 8' FROM EDGE OF BUILDING.
 - PROVIDE (2) 3" VENT LINES FROM EACH SECTION OF THE OIL INTERCEPTOR. ROUTE VENT LINE TO NEAREST WALL OR COLUMN. *CONTRACTOR SHALL VERIFY FOUNDATION PLAN TO AVOID ALL STRUCTURAL ELEMENTS*. ROUTE VENT LINE JUST BELOW STRUCTURAL JOIST AND OFFSET A MIN. OF 8' FROM EDGE OF THE PARAPET WALL.
 - PROVIDE A 5'X5' LEAVE OUT AT THIS LOCATION FOR FUTURE FLOOR SINK. PROVIDE DEEP SEAL P-TRAP BELOW GRADE. CAP AND SEAL DRAIN LINE 6" A.F.F.

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 Houston, Texas 77002
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 713.224.0457 fax
 www.powersbrown.com



PROJECT TITLE

FOMENTO DE CONSTRUCCIONES Y CONTRATAS INC

FCC ENVIROMENTAL HOUSTON MATERIALS RECYCLING FACILITY
 9172 LEY RD. HOUSTON, TX 77078

GENERAL NOTES

Infrastructure Associates
 INFRASTRUCTURE ASSOCIATES, INC.
 6117 RICHMOND AVENUE, SUITE 200
 HOUSTON, TEXAS 77057
 TBPE REGISTRATION NO. E-4506
 (713) 622-0120 PH. (713) 622-0557 FAX
 WWW.IAHOUSTON.COM

DATE	REVISION
04/30/2018	ADDENDUM 01
06/26/2018	REVISION 01
07/13/2018	REVISION 02
08/10/2018	REVISION 03

PROJECT NO: 161282
DRAWN BY: Author
CHECKED BY: Checker

SHEET TITLE

FLOOR PLAN - WAREHOUSE - PLUMBING

SEAL

SHEET NUMBER

P200

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FIG. 3.3
 III-59

1.9 Disposal of Liquids [30T§330.63(b)(4)]

There will be no disposal of liquids resulting from waste processing. No liquids are added during any phase of materials processing. Any liquids resulting from processed materials that are deposited on the facility floor will be washed as described in Section 1.7 and disposed as described in Section 1.8.

2.0 Closure Plan

**2.1 Closure Implementation Schedule and Documentation
[30TAC§330.457(f)(3-6) and 30TAC§330.461(a)]**

In the event that the facility has been designated to cease operations, the operator will initiate closure procedure no later than thirty days after the last receipt of recyclable materials. If the facility has not been designated to permanently cease operations but is not operating for any reason, the operator will initiate closure procedures within one year of the last acceptance of recyclable materials. The operator may apply to the Executive Director for an extension of the one-year period. Closure will be accomplished within 180 days of initiation of closure activities.

No later than 90 days prior to the initiation of final facility closure, the operator will make copies of the approved Final Closure Plan available for public access.

Within ten days after completion of closure activities, the operator will submit to the Executive Director, by registered mail, a certification signed by a Professional Engineer licensed in Texas stating that the facility has been closed in conformance with the requirements of this closure plan. The operator will provide documentation of completion of closure activities and a request for voluntary revocation of the Registration with the signed Certification.

After inspection by the TCEQ region to verify that closure activities have been accomplished, the Executive Director may deem that the facility has been finally closed. The operator will publish public notice of facility closure and provide such notice to the Executive Director at least ninety days prior to a determination of final closure.

2.2 Closure Procedures

The following tasks make up the procedures for closing and securing the facility after it has been determined that the facility will no longer accept recyclable materials for processing.

2.2.1 Engineering

A Professional Engineer licensed in Texas (engineer) will inspect the facility and property and review the Closure Plan to determine all activities required to properly close the facility. The engineer will prepare a Notification of Closure to the Executive Director.

The engineer will prepare specifications for all closure activities, designed to decommission the facility and leave it in a clean and stable condition that will be protective of public health and the environment. Items addressed in the specifications will include but may not be limited to the following.

- Waste and Materials Removal
- Equipment, Building and Site Clean-up
- Disinfection
- Vector Control
- Utility shut-off
- Signage
- Stormwater Management Facilities Repair and Stabilization

2.2.2 Closure Tasks

At least ninety days prior to initiation of closure, the owner or designee will provide Public Notice in the newspaper of largest circulation that the facility is intended to close, the name, address and physical location of the facility, and the last date of acceptance of materials.

The owner or designee will procure bids for all closure activities not accomplished in-house, award contracts as appropriate and administer closure for the following tasks. The engineer will monitor closure activities to determine compliance with closure specifications. The equipment, building and site will be thoroughly cleaned following the procedures outlined in the Site Operating Plan for cleaning using compressed air and sweeping. All wastes and residue resulting from clean-up activities will be collected and disposed at a municipal solid waste facility authorized to accept it.

Part III

All processed materials will be removed from the site and hauled either to appropriate materials markets or other solid waste management facilities authorized to accept them for processing or disposal.

All equipment and the building interior will be disinfected as determined in the closure specifications. The entire building will be treated for vector control as determined in the closure specifications.

Water, electricity, sewer and any other utilities will be disconnected or decommissioned in accordance with the requirements of the affected utility companies. All permanent stormwater management facilities will be inspected and repaired if necessary to ensure that they will remain fully functional after closure.

The owner or designee will see that all perimeter fences, gates and facility doors are secured and locked to prevent trespass, vandalism and illegal dumping. The facility sign will be replaced with a sign indicating that the facility is closed and is not accepting materials of any kind.

Attachment III.1 – Equipment General Specifications

03 Drum feeder

USE



In order to improve the efficiency of your waste paper sorting system Bollegraaf has developed the drum feeder, consisting of a bunker belt with drum feeder. By using the drum feeder the feed to your sorting will be optimized.

The main functions of this feeder system are:

- Higher capacity of the sorting installation, because fewer empty/less high places on the feeder belt occur. The drum feeder ensures a constant, adjustable material flow;
- Better sorting quality. There are no more large piles present on the belt. As a result, the sorting units, such as screens, magnets, air separation and even hand sorting will not be overloaded in peaks and can provide optimum output at all times;
- Time-saving for the shovel operator, who, depending on the length of the drum feeder, only needs to fill the drum feeder a few times per hour;
- Any boxes are for the most part opened and flattened by the drum feeder;
- If the drum feeder is not filled too high, large pieces of cardboard are torn into smaller pieces.

The dosage system consists of the following 2 components:

Bunker belt

The bunker belt is provided with a set of heavy steel slats, which is ideally suitable for loading from greater heights. The heavy steel construction ensures a long life span of the frame and steel belt. The speed of the bunker belt determines to a large extent the global capacity of the drum feeder.

The steel construction of the steel belt is modular. This means that the belt can be supplied in different lengths and can be extended later if necessary.

The steel undercarriage of the steel belt consists on both sides of plates (8 mm) which are joined together by means of tubular sections. The plates are joined longitudinally by means of steel angle sections (12 mm) which also serve as bearing surface for the chain. As a result, the belt construction has a high degree of rigidity. The steel angle sections are kept as long as possible as is permissible for transport. The wear on the chain is very slight as a result and the noise level of the chain transporter is low. UNP-180 standards are fixed to the frame on to which the 3mm thick side plating is mounted. The construction of the side plating is such that no arching of material can occur. The steel labyrinth seal between the belt package and the side walls ensures that no material can get on to the chain. A minimum of two maintenance hatches are installed in the undercarriage.

The whole bearing surface for the chain is replaceable because of the fact that they are screwed to the undercarriage.

The chain is a 6" hollow bolt chain with a roller diameter of 66.7 mm and breaking strength of 24,000 pounds. The belt consists of a robust set of slats which is constructed of tubes (100 x 80 x 4 mm), and edged segments (wall thickness 5 mm). On the sides, these tubes and segments are attached to the 6" hollow bolt chain via thick side walls of 15 mm steel, which are partially fixed and partially hinged. The distance between the segments/tubes is only 1-2 mm.

The steel deck consists alternately of an edged segment and a tubular section. The slats can be replaced without having to interrupt the chain.
Chain wheels are utilized with a pitch circle of 398 mm and 8 teeth.

The steel belt is driven by an SEW motor reductor which is mounted on the spindle. The drive shaft is supported by 2 self-adjusting ball bearings. The motor is protected against start-up shocks by means of rubber buffers. The chain is tensioned by means of 2 tension bearings mounted in the tensioning station. The bearings have a grease cartridge for 10,000 working hours minimum and therefore require very little maintenance.

The reverse shaft has a diameter of 60 mm. The drive shaft has a diameter of 90 mm.

Drum feeder

The rotation direction of the drum is the opposite to that of the belt, so that the material is carried over the drum.

When the drum is started the bunker belt runs back for approximately 500 mm, so that no material will touch the drum. As a result, the drum can reach its speed unloaded.

On the drum, a cam is mounted on every carrier in spiral form which ensures that boxes can be opened and picked up.

The optimum loading height is a material height which is level with the top of the drum. Furthermore, at this loading height the highest percentage of boxes and packages is torn/pulled open.

The opening between the side walls of the bunker belt and the drum is sealed with a ring so that any dirt entering in between these is kept to a minimum. Also, at the location of the drum, there are two maintenance hatches on each side in the side walls of the bunker belt.

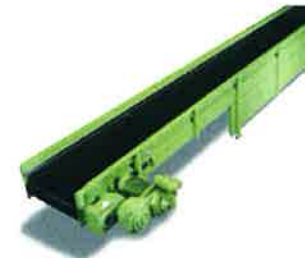
The shaft of the drum is provided with self-adjusting ball bearings.

At the location of the drum feeder there is an inspection door with safety switch mounted on one side of the bunker belt. The door will

Part III

Translation of the original Instructions

05 HBGT250



The slider bed belt conveyor is used especially to move light, voluminous materials and is perfect for use as a sorting belt because of its flat, enclosed construction. On top, the cloth slides over a steel plate and is taken across support rollers on the other side. These support rollers are set no more than 2500 mm apart.

The frame of the sliding belt is of modular construction: a motor section and a tension section with, in between, modules of different lengths. Every module is made of 5mm sheet steel reinforced with ribs. The modules are longitudinally screwed together by way of two angle brackets, providing a solid construction. The side screens of the belt can be supplied in different heights. The screens are made of 3 mm sheet steel, screwed to the bottom frame. Two inspection hatches have been provided in the motor section and the tension section.

A sleeve in the middle of the belt contains the electrical wiring.

The sliding belt is put into motion by way of a drum that is driven by an SEW motor reductor, which has been mounted directly on the shaft. The drive drum and the return drum have a diameter of 250 mm, and have been given ridges for better control of the rubber cloth.



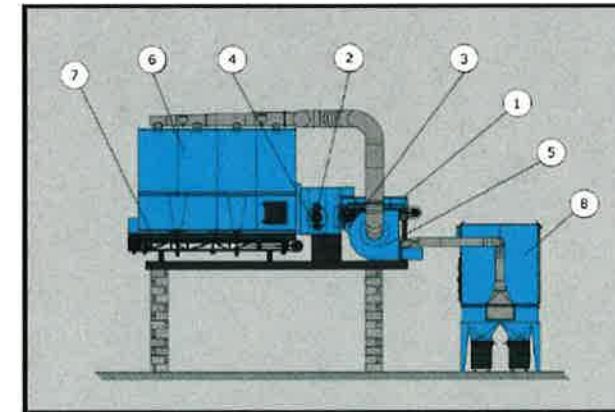
Optionally, the sliding belt can move in two directions. In this case, the drums are also given two grooves and the cloth 2 control belts for the best possible control of the rubber cloth in both directions.

With lengths of more than 9000 mm, the drive drum is given a friction material that guarantees better grip on the rubber cloth. Because there are no transportation chains, the sliding belt is very quiet.

As is typical for the whole Bollegraaf product range, the sliding belt, too, demands very little maintenance because the bearings are "grease-filled" for at least 10,000 hours of operation and, moreover, the motor reductor is mounted directly on the shaft.

The standard rubber cloth of the belt, type S200/3, is equipped with a top layer of 1½ mm, 1 inside layer and a slide layer. Total thickness is 4.2 mm. The cloth is hardwearing. An oil and greaseproof version is optionally available.

2. Technical Data



2.1. Working principle Air Separation

Basic principle Air Separation:

The separation system is a partly closed loop air system by the main circulation fan. The air from the fan is diverted and for approximately 80% circulating in the system and 20% of the air is diverted to an air filter and returned clean in open air. Due to this the system the fan blows 80% of its air through the separation section into the expansion chamber where a 100% air is extracted through suction lines returning the air to the main fan.

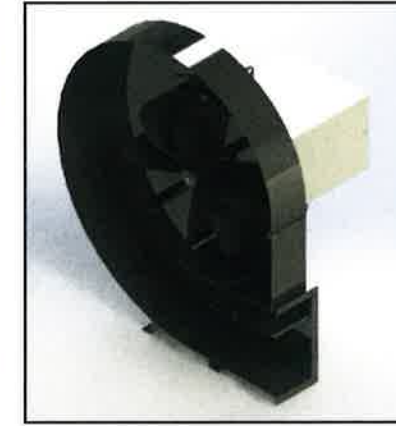
Basic principle 2 way air separator

See Chapter 10; drawing **3A.GEN.A1001-001**

The following components are integrated in the first part of the air separation unit.

- 1) A speed-up conveyor.
This conveyor is adjustable in a horizontal and vertical position, in angle and speed.
- 2) Below the conveyor a blow mouth is installed.
To adjust the air flow, the blow mouth is executed with 2 air regulation valves.
- 3) Behind the speed-up conveyor a separation chamber with a rotating drum is installed.
In the 1st stage separating chamber, using the blowing capacity of the blow mouth and the suction capacity above the separating drum the heavy, the middle and the light fraction will be separated.
- 4) In front of the drum, the heavy fraction is, by means of a chute, discharged to a discharge conveyor.
The middle and the light fraction is blown over the separation drum and extracted and discharged to the 1st stage expansion chamber.
- 5) Below the expansion chamber a discharge conveyor transports the middle and the light fraction to the 2nd stage separating chamber.
The middle fraction is, by means of a chute, discharged to a discharge conveyor.

2.4. Blowing Fan.



2.4.1. The fan consists of:

- Spiral casing. In this casing the rotating fan produces suction.
- Driving. Supplied by rotary current motor.
- Suction duct
- Pressure duct.

See figure 1.1.

2.4.2. Data main Separator Fan:

Type:	ETDW-450
Drawing:	0203197
Serialnumber:	W0056250B
Main dimensions LxBxH (mm):	1397 x 972 x 1646
Mass (kg):	900
Position:	4R direct driven
Impeller diameter (mm):	Ø770
Shaft diameter (mm):	Ø48
Inlet diameter (mm):	Ø450
Exhaust dimensions (mm):	450x360
Motor:	Rotor 18,5 kW B3
Power:	400/690V / 60Hz 3 Phase
Max amperage (Amp):	30
Revolution per min. (1/min):	1500

2.4.2.1. Expansion chamber with discharge conveyor.

In this separating section the air flow from the blow mouth over the rotating drum into the expansion chamber

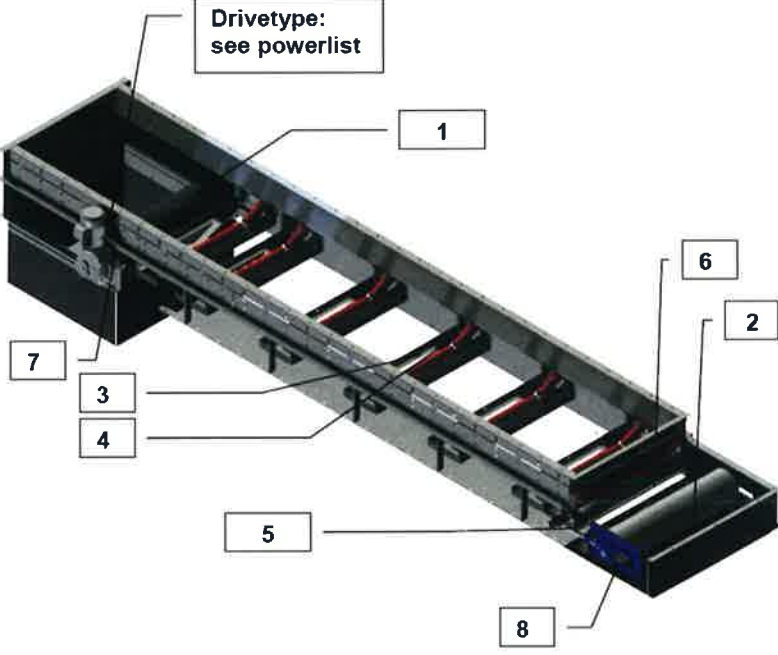
The heavy material discharges from the speed conveyor along the front of the role and is discharged to a discharge conveyor. This discharge conveyor is no part of the delivery

The lighter fraction is blown over the separation drum discharging in the expansion camber where the lights fraction settles in the expansion chamber.

In the Expansion chamber the air is separated from the material.

TB Belt Conveyor

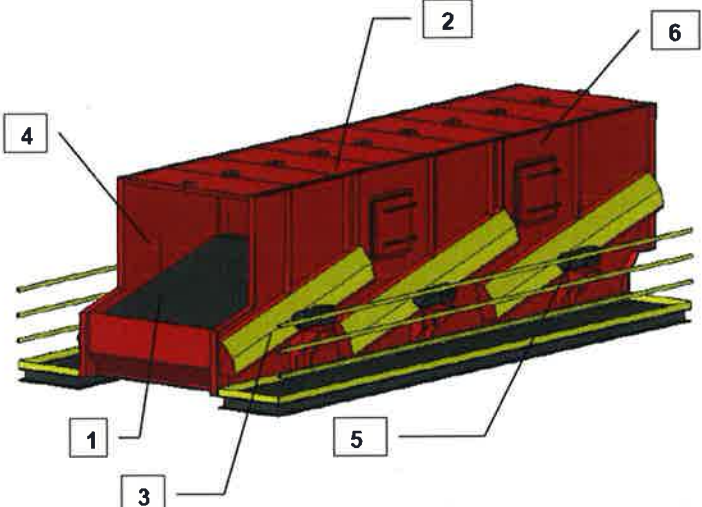
General

Description	Belt conveyors are used for: <ul style="list-style-type: none"> • Transport of raw or separated material
Construction	
Pos	Description
1	Drive drum
2	Return drum
3	Carrying Idler middle
4	Carrying Idlers trough
5	Return Idler + support rings
6	Return Idler straight (When used)
7	Flangebearing
8	Tension bearing
For drawings of conveyors see chapter drawings	

OCC Starscreen

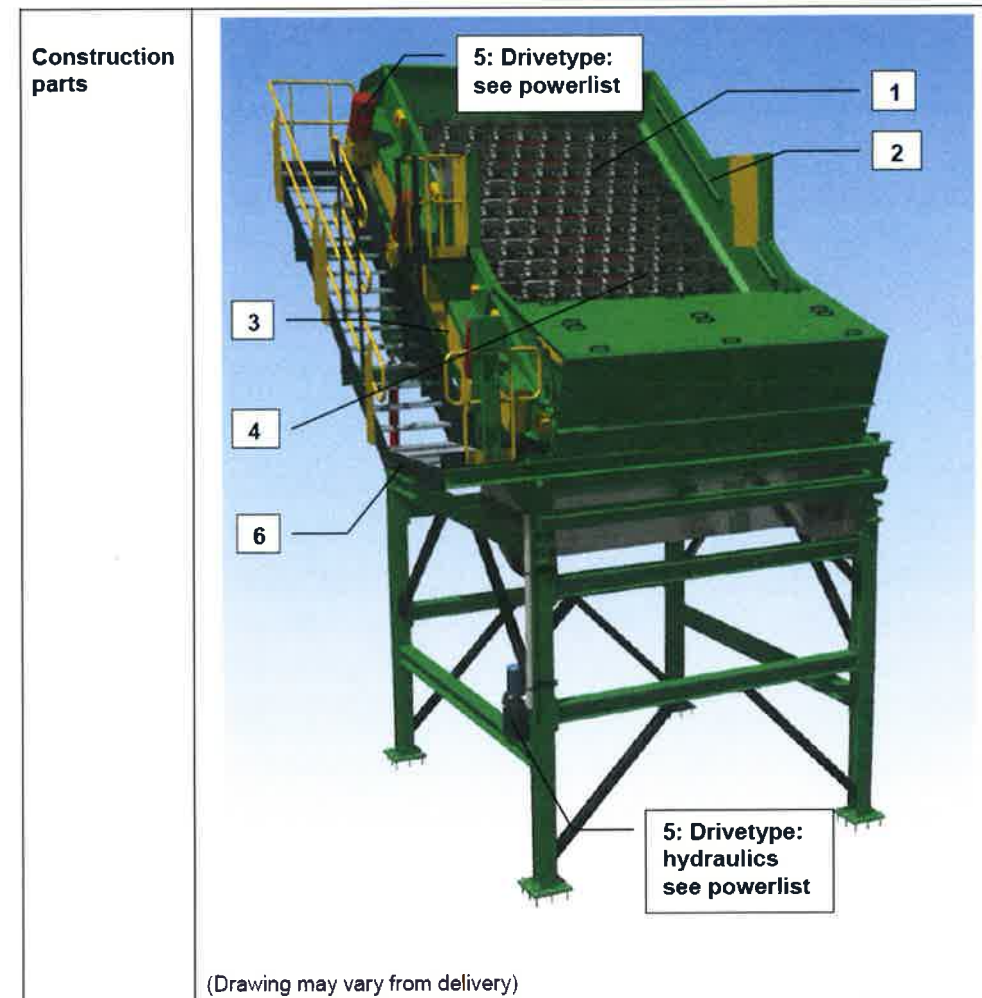
General

Description	<ul style="list-style-type: none"> • Screening is done by means of a unique principle, moving the material by rotating star-shaped discs across the screening platform. • The open spaces between the discs accomplish a certain screening differentiation. • The size of the material to be screened can be adjusted within certain limits by changing the rotating speeds of the stars. •
Depending on the installation the screen can be used for:	
OCC	<ul style="list-style-type: none"> • The OCC (Old Corrugated Cardboard) star screen is developed to separate large cardboard from material flow. The overfraction is large cardboard. Paper, small cardboard and small material will be screened out. The OCCscreen is mostly at the beginning of a sorting installation to separate the large cardboard. • The screen uses the difference in size and rigidity of the material. The cardboard is hit over the screen by the stars and the paper slides between the stars. • Spacers between the stars may have plates (strip) that hit the small cardboard up once more. <ul style="list-style-type: none"> ○ In addition these plates decrease the winding of material. ○ It is also easy to clean the spacers due to the plates.
C&D	<ul style="list-style-type: none"> • The C&D screen is a coarse screen for screening (unshredded) construction and demolition materials. The screen is placed in a solid casing, totally enclosed. • The screen is equipped with a discharge conveyor for the under fraction of the screen. • Long parts like an electricity tube have per definition a limited thickness, therefore a percentage will fall through the course screen and end up with the under fraction. • The function of the long part separator is to pick out the long parts from the under fraction. The long part separator is placed at the end of the discharge conveyor of the under fraction to separate parts of approximately 900mm and longer.
Screening deck	<ul style="list-style-type: none"> • The 660 screen consists of screening decks • The screening decks consists of various axles, on which rubber stars are mounted. The stars have a diameter of 660 mm. • The screening size can be determined by means of the size of the stars, the interval between the stars and the rotation speed. • The infeed side of the screen has double settings of stars on staraxles, to avoid material with a medium size falling through the screening deck.
Drive	<ul style="list-style-type: none"> • High quality materials are used for the drive. Standard, the Lubo star screen is driven by SEW motor reducers. • The adjacent star axles is driven by means of chains and gear wheels. • The speed of the screening deck is variable due to the use of frequency transformers. • For the details on the drives see chapter Drives.

<p>Screen Construction</p>	<ul style="list-style-type: none"> • The Starscreen consists of a base frame with screening decks • The construction details for each screen are shown in the drawings, which are numbered according to their specific type-number (this number can be found on the typeplates of each screen) • The starscreen inspection door is equipped with an electric safety switch.
<p>Construction parts</p>	 <p>(Drawing may vary from delivery)</p>
<p>1</p>	<p>Screening deck and staraxles</p>
<p>2</p>	<p>Sideplates</p>
<p>3</p>	<p>Chains and chaincovers</p>
<p>4</p>	<p>Position infeed (conveyor)</p>
<p>5</p>	<p>Electric motor and gearbox drive</p>
<p>6</p>	<p>Inspectiondoor at driveside, with access ladder</p>
<p><u>For detailed drawings of the construction see chapter drawings</u></p>	

Starscreen**General**

Description	<ul style="list-style-type: none"> Screening is done by means of a unique principle, moving the material by rotating star-shaped discs across the screening platform. The open spaces between the discs accomplish a certain screening differentiation. The size of the material to be screened can be adjusted within certain limits by changing the rotating speeds of the stars.
ONP or CS	<ul style="list-style-type: none"> A ONP screen consists of 1 screening deck A second ONP can be placed in line A third ONP, or Comingled screen can be placed in line with both ONP's The screen is placed on its own steelconstruction. For this type of screen stars have a diameter of 330 or 440mm
Screening deck	<ul style="list-style-type: none"> The screen size is determined by the size of the stars, the space between the stars and the rotation speed of the screen. Screen size 1st screen: Din A4 Screen size 2nd screen: Din A5 Screen size 3rd screen: 0-50mm Screen angle deck: Adjustable between 38° and 45° The starscreen consists of various axles on which rubber stars are mounted. Stars are mounted in such a way that the stars can be exchanged without taking the shaft out of the screen. Complete starshafts can easily be replaced by means of the patented LUBO quick disconnect
Drive	<ul style="list-style-type: none"> ONP Starscreen is equipped with three motordrives. CS Starscreen is equipped with 4 drives The motors are equipped with an electromagnetic return brake For the details on these drives see chapter Drives. The adjacent staraxles is driven by means of chains and chainwheels. The speed of the screening deck is variable due to the use of frequency transformers.
Air support Comingled screen	<p>Air support system</p> <ul style="list-style-type: none"> In order to influence the material stream on the screen the comingled screen is equipped with an airtsystem. In order to create enough air volume a fan is used. A perforated pipe is connected on the suction side of the fan and prevents any material getting into the ventilator. The blast air is transported to the outlet channel through a pipeline system that exists of ducts, tubes, tube bends and flexible hoses. By blowing over the stardeck, light material will be lifted and screening is more efficient For specs of the air support see chapter 82
Construction Screen	<ul style="list-style-type: none"> For the construction details of the Starscreens see chapter Drawings. The construction details for the single ONP-screen are shown in the drawings, which are numbered according to their specific type-number (this number can be found on the typeplates of the screen) The star axles are made of solid steel.



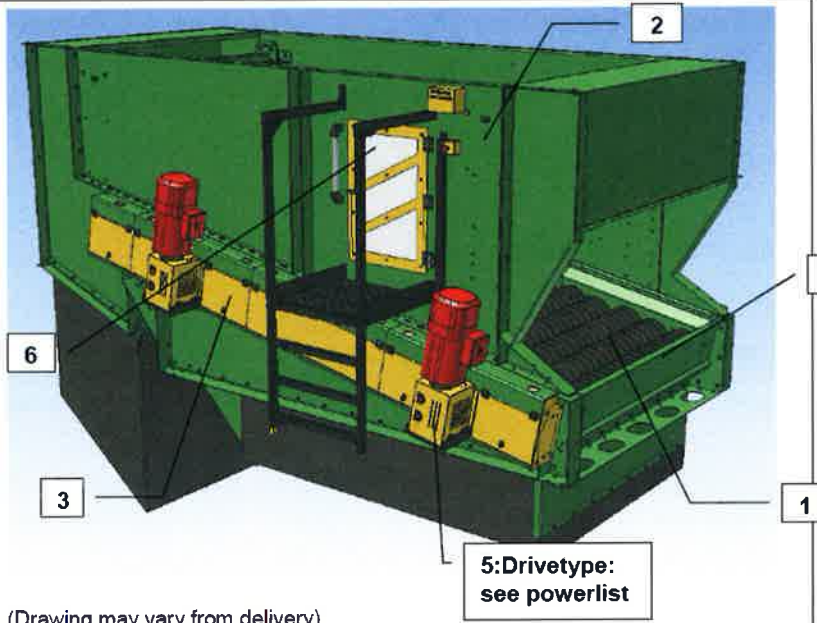
Construction parts

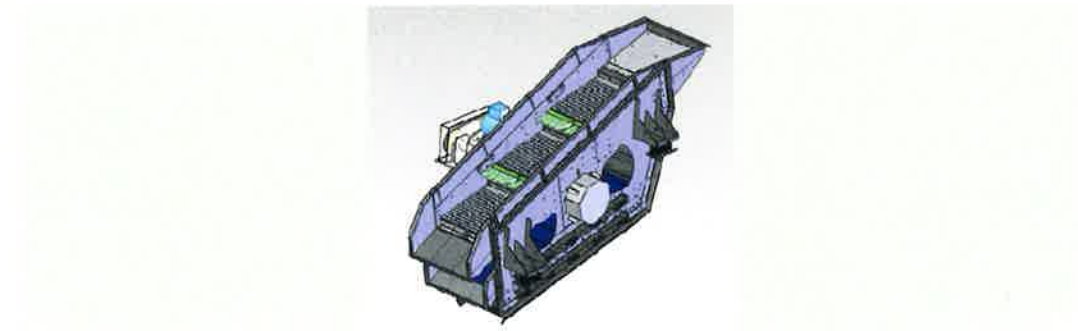
1	Screening deck and staraxles
2	Sideplates
3	Chains and chaincovers
4	Backplate / position infeed conveyor
5	Electric motor and gearbox drive (See chapter 8)
6	Construction and walkways
<u>For detailed drawings of starscreen see chapter drawings</u>	

Fines Starscreen

General

Description	<ul style="list-style-type: none"> • Screening is done by means of a unique principle, moving the material by rotating star-shaped discs across the screening platform. • The open spaces between the discs accomplish a certain screening differentiation. • The size of the material to be screened can be adjusted within certain limits by changing the rotating speeds of the stars.
Fines 290/330	<ul style="list-style-type: none"> • For this screen stars have a diameter of 290 or 330mm • The screendeck spreads out the materials and draws them apart. • Due to a high transport speed, the material is thinly spread on the screening deck. As a result, the Lubo star screen has a high processing capacity and screen efficiency. • Stars can easily be replaced by means of the patented LUBO quick disconnect.
Screening deck	<ul style="list-style-type: none"> • The fine starscreen consists out of screening decks • Type of axles are steel shaft with (flower) stars welded on it • Shaft assembly is in one piece, and can not be dismantled • The screen size is determined by the size of the stars, the space between the stars and the rotation speed of the screen.
Drive	<ul style="list-style-type: none"> • Each Starscreen is equipped with one or more motordrives. • For the details on these drives see chapter Drives. • The adjacent staraxles is driven by means of chains and gear wheels. • The speed of the screening deck is variable due to the use of frequency transformers.
Note	<ul style="list-style-type: none"> • For screen 0160 the chains and sprockets are replaced by toothed belts. • In case of a malfunction the screen can be re-built to original state because original parts are delivered as spareparts.

<p>Construction parts</p>	 <p>(Drawing may vary from delivery)</p> <p>5: Drivetype: see powerlist</p>
<p>1</p>	<p>Screening deck and staraxles</p>
<p>2</p>	<p>Sideplates</p>
<p>3</p>	<p>Chains and chaincovers</p>
<p>4</p>	<p>Backplate / position infeed conveyor</p>
<p>5</p>	<p>Electric motor and gearbox drive</p>
<p>6</p>	<p>Inspection door at driveside</p>
<p><u>For detailed drawings of starscreen see chapter drawings</u></p>	



Double Deck Screen SZWS

3D-Combi

Flip-Flow-Screen

Shaft Drive System SW (46)

B SPALECK Vibratory screen type 3D Combi FFS SZWS with shaft drive

B 1 Functional principle 3D Combi FFS SZWS

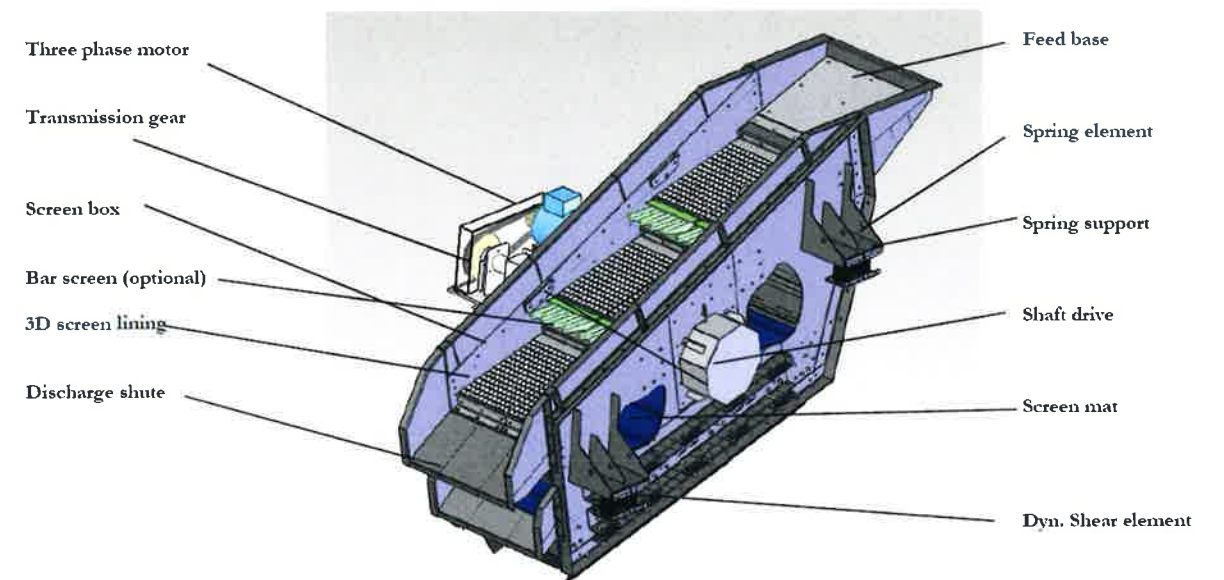
With the 3D Combi FFS SZWS screen, bulk materials are screened and conveyed using mechanical vibrations (micro-throw principle). The drive principle is implemented with a shaft drive. The permitted vibration amplitudes are adapted to the product, and they must be agreed with SPALECK when necessary.

B 2 Construction 3D Combi FFS SZWS

The 3D Combi FFS SZWS-type vibratory screen basically consists of the following main elements:

Possible additional elements:

- Wearing lining (lateral)
- ACTUAL / TARGET control loop



B 3 Replacement part overview SZWS

➔ Appendix

D Clamped screen mat

D 1 Definitions screen mat

Screen mat	Often also described as a screen lining
Vibratory screen	Complete vibratory machine / screening machine
Screen box	Basic construction of the screen

D 2 Notices

- ⇒ The screening machine should be operated with screen linings that are undamaged and fitted in accordance with the regulations.
- ⇒ If this is not observed, the manufacturer is not liable for damage that occurs.
- ⇒ The screening machine is equipped for the application agreed.
- ⇒ In case of modifications to the product, the manufacturer is not liable for damage that occurs or poor screening performance.

DANGER! Never carry out modification to the screen lining / mat during operation!



D 3 Construction

The screen mat is fastened using the following main components:



To clarify the principle, a clamped screen mat is shown here.
 (a) Basic construction / side wall of the screening machine
 (b) Clamping strip
 (c) Screen mat

D 4 Assembly screen mat

- ⊗ Clean the screen mats, clamping strips and screen crossbeams (of the basic and dynamic frame) and check for damage.
- ⊗ Replace defective parts immediately with SPALECK original replacement parts
- ⊗ Always place screen mats on the screen crossbeams in pairs
- ⊗ Align the screen mats centrally between the side walls so that there is an identical gap on both sides.
- ⊗ Wet the clamping strips with water before assembly

CAUTION Screen mats and clamping strips are fastened using positive locking, additional seal materials are not necessary. Do not use any hard or sharp objects for driving in the clamping strips.



- ⊗ Fix the clamping strips in the gap between the two screen mats and drive in
- ⊗ Drive in the clamping strips cautiously and along the entire length using a rubber hammer
- ⊗ After successful assembly, clamping strips form a flush finish with the screen mats

CAUTION After the first 10 hours of operation, a new screen plate must be checked to see it is correctly clamped.



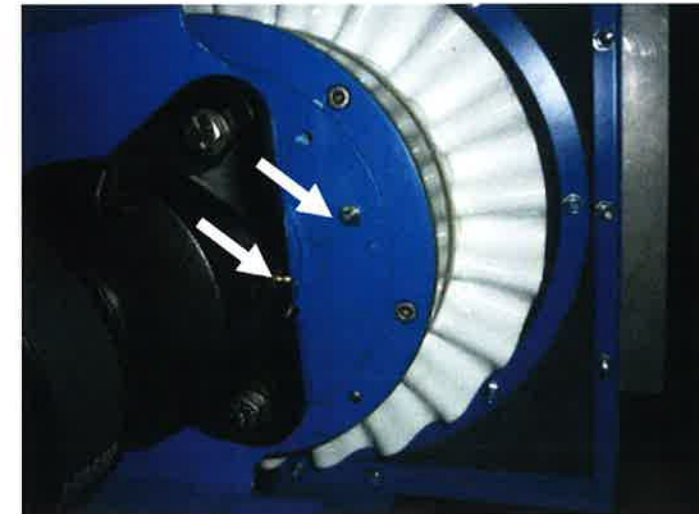


Figure 10: lubrication points

Action	
1.	Before commencement of re-lubrication, first remove the dirt from the grease nipples.
2.	Apply 16 grams of ball bearing grease (three strokes of the grease gun).
3.	Check whether the small outlet holes for grease in the bearing housings and the covers are covered with lubricant; fill these small outlet holes with a small amount of lubricant if they are empty.
LUBRICANT: For this, use Shell Alvania R2 grease or use another lubricant that meets with the SKF lubricant instructions	

6.4 Belt tension and belt control

Adjust the belt tension again if the conveyor belt has been stretched, or if the conveyor belt has moved too far to one side whilst turning.

Action	
1.	Remove the guard covers at the back: behind this are the 4 mounting bolts for the sliding piece. Turn this loose with 2 turns (see figure 11)
2.	Turn adjusting nut B loose (on both sides of the machine)
3.	Turn adjusting nut A either to the left or to the right (on both sides of the machine), in order to increase or lower the belt tension
4.	Next turn adjusting nut B back to tighten it firmly (to lock).
5.	Check the belt run and belt tension. If the belt remains running stably in the middle of the machine and is not too tight then the belt is properly adjusted.
6.	Turn the 4 mounting bolts back to tighten firmly and put back the guard covers behind

!	<p>Attention! If the belt is set too tightly the separator may come into contact on the inside with the separator shell/roller. With a correct belt tension, the belt sags by 30-50 mm in the centre of the machine (underside)</p>
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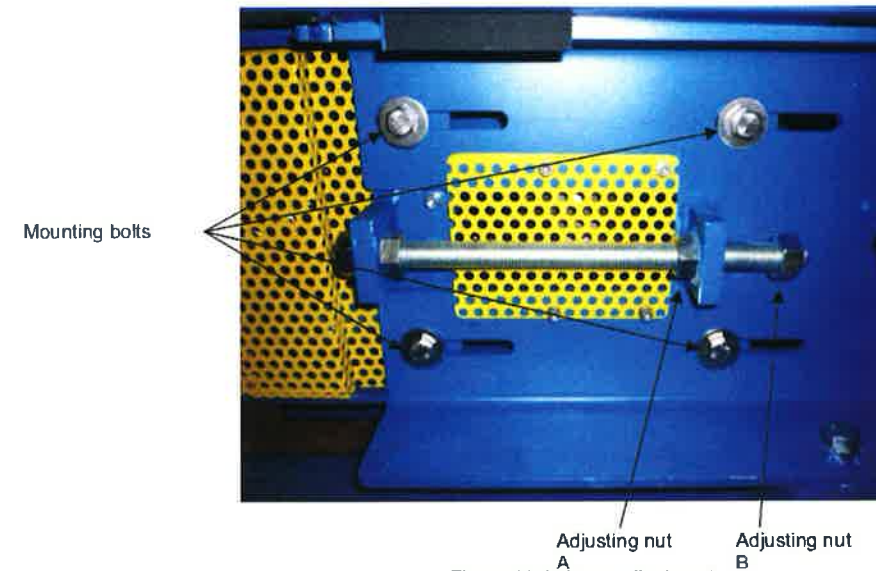


Figure 11: belt run adjustment

!	<p>Attention! The belt run reacts very quickly to small changes in the tension. Thus ensure that the belt is approximately equally tightly tensioned on both sides</p>
---	---

!	<p>Attention! The belt may run in the event that the material flow is not fed into the middle of the belt.</p>
---	---

Tip: If the belt is normally tensioned and still deviates towards one side, vary the tension in small increments on one side of the drive drum. In this situation it applies that: If you tighten the belt, the belt runs away from the set point. If you loosen the belt, the belt runs away towards the set point.

6.5 Conveyor belt removal or replacement

For the internal cleaning of the machine it is important that the belt is moved to the side. In the event that the Conveyor belt has been perforated or torn, then it needs to be replaced. Contact your dealer first before ordering a new belt. If you have received and checked the new belt, then follow these steps:

	Action
1.	Remove all side panels and upper most sealing covers so that the whole belt is accessible.
2.	Turn the locking nuts loose from the sliding pieces between which the drive roller is located (figure 11)
3.	Slide these sliding pieces to the inside (figure 11)
4.	Disassemble the 4 bolts on the motor side (this is the side along which the belt is changed). On the other side turn the same 4 bolts loose by 2 turns (figure 12)
5.	Fit a tube (or other long, sufficiently robust material) onto the appropriate location (four threaded holes are fitted next to the main motor). (Figure 13)
6.	Lift the machine loose by 5mm, as shown in figure 13
7.	Remove the 2 supports as shown in figure 14 with, as result, figure 15
8.	Slide the belt off from the roller over the tubes of the frame. (figures 16 and 17)
9.	By means of replacing the supports, the machine may be put down.
10.	Remove the belt
11.	Remove the upper most slide plate and clean the machine on the inside.



Bollegraaf
RECYCLING MACHINERY

OVERBAND MAGNET SYSTEM



**USER MANUAL
OVERBELT MAGNET SYSTEMS**


1 SAFETY INFORMATION


Always follow the safety instructions in this chapter for safe handling and use of the machine.

1.1 Purpose and limitations of use

These machines may only be used for the separation of ferrous metals from a goods flow. Although the machine may operate outdoors, it should be protected from wind and rain. Both affect the separation power and the durability of the machine. The machine is usable in ambient temperatures from -15°C to +40 °C, and **not** in explosive, aggressive, abrasive or corrosive materials, liquids, gases or vaporous environments.

Your machine and user manual are designed for the use described above. The manufacturer strictly advises against any other use of your machine!

	<p>Attention! Always contact your supplier if you:</p> <ul style="list-style-type: none"> ○ want to utilize the machine in another way; ○ have doubts about the correctness of the desired application of the machine.
---	---

	<p>Attention! We draw your attention to the fact that it is forbidden to put into use the installation into which this product is built before it has been declared to be in accordance with provisions of the machine and other related directives.</p>
---	---

1.2 Responsibilities of owner


(Operating and technical personnel with regard to safety)

1. Operations to the machine may only be carried out by persons who have studied this manual carefully.
2. In order to guarantee the safety of the machine at all times alterations to the machine are not permitted.
3. Changes to the machine are only permissible following written consent from the supplier.
4. The maintenance must be carried out in the manner as described in this the manual (see chapter 5).

1.3 Built in safety provisions

Guard covers are installed on the upper side of the machine, see illustration 1. These guard covers prevent foreign objects, at that place, from being caught between the belt and drum (loose clothing, tools, etc.). On the lower side of the belt such guard covers are not fitted, for the reason that otherwise they would interfere with the operation and the function of the machine.

In the event of acute or imminent danger, immediately switch the machine off.

	<p>Warning! Switch the machine back on again only <u>after</u> a malfunction has been corrected or <u>after</u> the danger has passed.</p>
---	---

See paragraph 5.5 for the cancelling of a malfunction and the restarting of the machine.

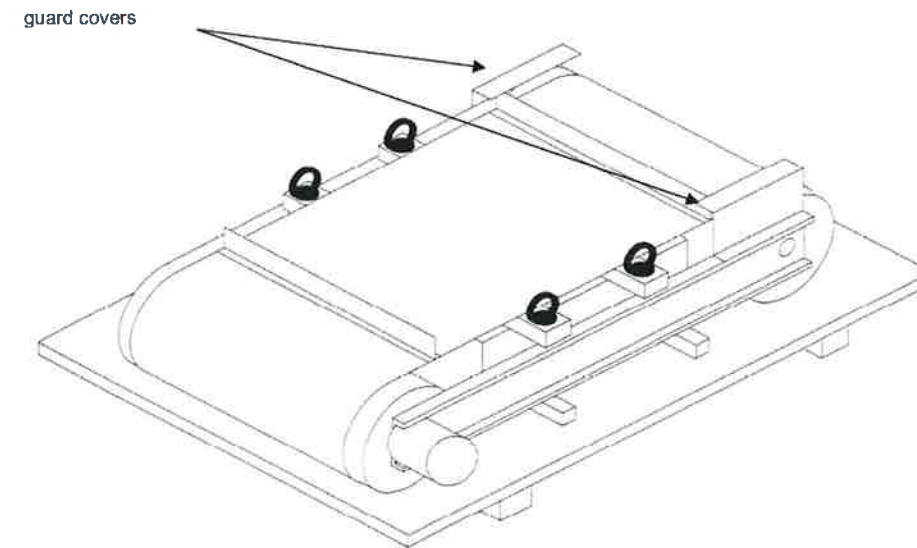


Figure 1: outline drawing

1.4 Specific hazards during use of the machine

	<p>Warning! Whilst a machine is operating, the metal guard covers must never be dismantled in order to avoid getting trapped.</p>
	<p>Warning! Never insert tools into the machine whilst it is operating. The machine contains moving parts such as rollers, shafts and a conveyor belt.</p>
	<p>Warning! After switching the machine off, allow the moving parts to come to a stop before you carry out work on the machine.</p>
	<p>Warning! When in the proximity of the machine, take extra care with sensitive and electronic devices (watches, pacemakers, hearing aids, pagers, etc.). Keep these devices at a safe distance of approximately 2 metres away from the machine, also when it is not in operation!</p>
	<p>Warning! Data on magnetic information carriers such as bank cards, diskettes, videotapes, etc., are damaged (erased) by strong magnets. Therefore keep these information carriers at a safe distance of approximately 2 metres away from the machine, also when it is not in operation!</p>

The HBC baler is manufactured by:

Bollegraaf Recycling Solutions

The HBC baler is equipped with a hydraulic unit and electrical system using the latest technology. Therefore, every paper grade can be baled fully automatically and without disturbances.

In addition, the machine can bale plastics, cans and textiles.



Three separate conveyors can feed an HBC baler simultaneously.

The conveyors are connected to the top entry hopper of the baler. The feeding conveyor can be stopped and started by push buttons on the switchboard.

The top/bottom electronic eyes also automatically stop and start the conveyor.



The machine can load on either bottom or middle/top eye.

When the ruffler is used, the machine will automatically load on the bottom eye.

AUTOSORT

[components] with FLYING BEAM® technology



A GLOBAL PIONEER IN SENSOR-BASED SORTING

5 Device description

5.1 Functional description

5.1.1 AUTOSORT

AUTOSORT systems consist of a scanner unit (figure 5, “View of the AUTOSORT,” on page 19 pos. 3) with control unit (figure 5 on page 19 pos. 1) and a valve block (figure 5 on page 19 pos. 4) at the end of a conveyor. Figure 3 shows a high-mounted system with several possible options.

Input material is fed evenly onto an acceleration conveyor (figure 5 on page 19 pos. 16), where it is detected by the AUTOSORT scanner unit and an optional EM sensor (figure 5 on page 19 pos. 5) which scans the complete width of the belt in a line. If one sensor detects material to be sorted out, it commands the control unit to blow the right valves of the valve block at the end of the acceleration conveyor. The sorted material is lifted by air over the splitter roll inside the separation chamber (figure 17, “Cross-section of the separation chamber showing the splitter,” on page 31 pos. 3). The rest falls onto a lower conveyor or bunker.

5.1.2 Valve block positioning system (VBPS)

Drawing no.: A_VBPS...

The VBPS is a mechanical extension of the valve block. It enables the valve block(s) to be tilted away from the conveyor for easy cleaning and service. The valve block is moved by using power from compressed air.

The VBPS air pressure regulator unit is connected to the main air supply for the AUTOSORT. It provides two outlets with different pressures to the VBPS Control Unit.

The VBPS control unit contains all electrical parts and the control valve to fill one or the other chamber of the air cylinder.

5.2 TOMRA Sorting scope of supply

5.2.1 AUTOSORT

The TOMRA Sorting scope of supply consists of the orange components shown in the illustration below. The Conveyor, scanner frame, support frame and VPBS adjustment are to be supplied by the customer if not bought as an option.

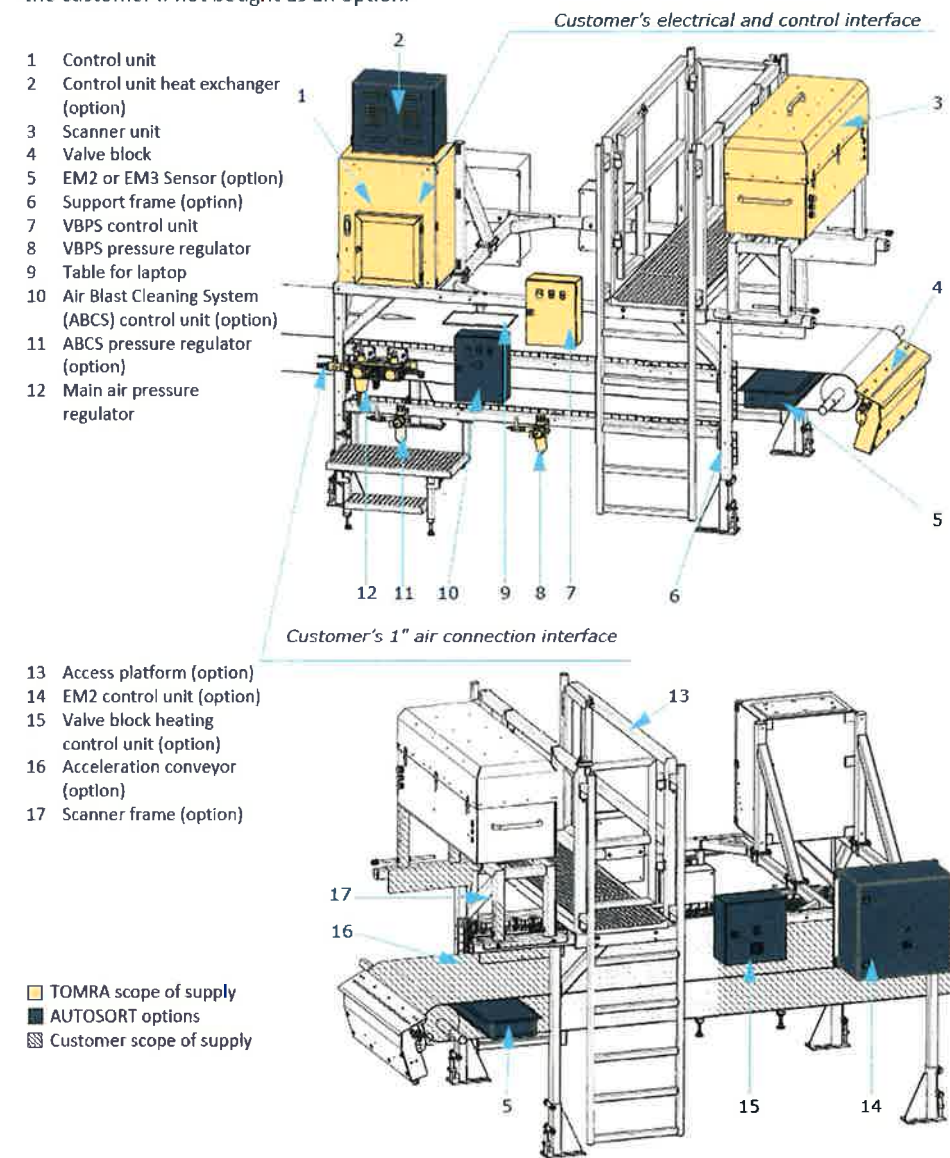


Fig. 5: View of the AUTOSORT

Part III

5 Pre-Installation Requirements Device description



In addition, all interconnecting cables are delivered.

5.2.2 VBPS scope of supply

Regarding the AUTOSORT VBPS, TOMRA Sorting only delivers the electrical (VBPS control unit, cables) and pneumatic parts (VBPS pressure regulator, hoses). For the mechanical part (VBPS Adjustment), TOMRA only delivers both cylinders and the position sensor (see figure 6 on page 20 in orange).

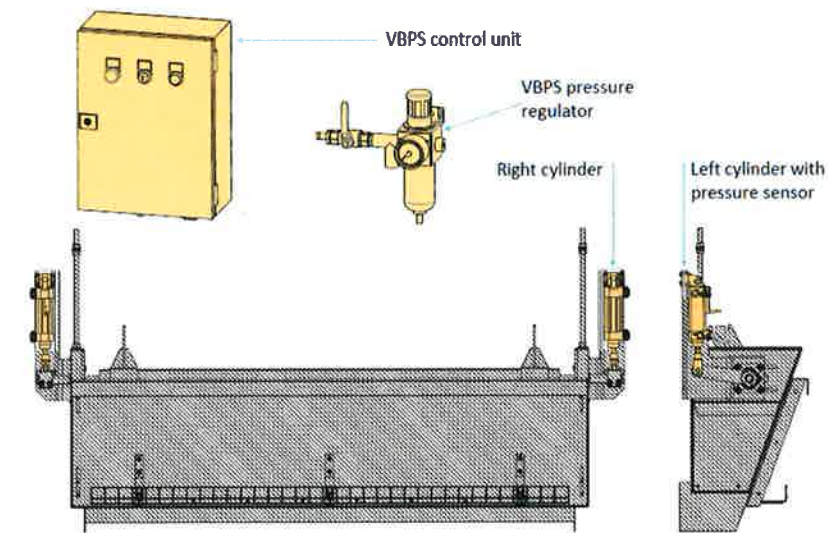


Fig. 6: VBPS components

Part III

Attachment III.2 – Effluent Disposal and Storm Water Documents



CITY OF HOUSTON
Houston Public Works

Sylvester Turner

Mayor

Carol Ellinger Haddock, P.E.
Director
P.O. Box 1562
Houston, Texas 77261-1562

832-395-2500
www.publicworks.houstontx.gov

April 19, 2018

Mr. Inigo Sanz
Fomento De Construcciones Y Contratas Inc., FCC SA
1610 Woodstead Court, Suite 360
Woodlands, Texas 77380

Subject: Wastewater, Water, and Storm Application

Dear Mr. Sanz:

This Letter supersedes our letter dated March 22, 2018.

Reference is made to your application concerning the availability of wastewater, water and storm capacity to 10.8277 acres of land being Restricted Reserve "A", Block 1, of Railwood, Section 10, located at 9172 Ley Road.

This site would be served by the Homestead Wastewater Treatment Plant upstream from the Dockal Pumping Station. Wastewater and water capacity is currently available for your proposed construction of 103,425 square feet of (recycling center) warehouse and 14,244 square feet of manufacturing office space with 280,607 square feet of parking/drive and detention pond, or a development utilizing a maximum of 15.8902 service units per day.

An Impact Fee in the amount of \$19,054.10 and a \$28.50 Administrative Fee must be paid in order to reserve wastewater capacity. An Impact Fee in the amount of \$9,955.21 and a \$28.50 Administrative Fee must be paid in order to reserve water capacity. Houston City Council may review and revise related ordinances, which will change the above-quoted fees and/or the development criteria and design requirements for this project.

Furthermore, the City Engineer may, from time to time, revise the Department of Public Works Infrastructure Design Manual, resulting in changes to the design criteria and parameters that must be followed in the development of this site.

Sanitary sewer connection must be made to the existing 10-inch sanitary sewer in Ley Road.*

For discharge into the sanitary sewer system of any waste other than domestic waste, please contact the Industrial Wastewater Service at (832) 395-5800 for permitting requirements.

Council Members: Brenda Stardig, Jerry Davis, Ellen R. Cohen, Dwight A. Boykins, Dave Martin, Steve Le, Greg Travis, Karla Cisneros, Robert Gallegos, Mike Laster, Larry V. Green, Mike Knox, David W. Robinson, Michael Kubosh, Amanda Edwards, Jack Christie
Controller: Chris Brown

Part III

Mr. Inigo Sanz
Fomento De Construcciones Y Contratas Inc., FCC SA
April 19, 2018
Page 2 of 3

Please note, if the sanitary sewer line to which connection will be made is deeper than twenty feet (20'), or is larger than thirty-six inches (36") in pipe diameter, then the connection must be made to the nearest existing manhole of the sanitary sewer line. Please contact Mr. Simon Tung in the City Engineer's Office at (832) 394-9135 prior to engineering the plans for connection.

The existing 12-inch water main located in Ley Road will provide service to the subject property.*

Water customers located outside the Corporate Limits of the City of Houston must obtain a plumbing permit prior to connection to the water system.

Based on your tract size, the Stormwater detention rate is 0.50 acre-feet per acre. Any new private storm drainage system should not result in adverse impacts to the City's storm drainage system and **must connect to the 36-inch RCP pipe storm drainage system along Roundhouse Lane.**

This tract is located in the Greens Bayou watershed which is subject to a **drainage impact fee rate of \$13.41 per service unit** (1 service unit = 1,000 sf of impervious area) of increased impervious area.

Failure to pay the Wastewater Impact Fees within six (6) months from the date of this letter will result in the expiration of this reservation. If this project is not under construction within two (2) years from the date of this letter, the water and storm portion of this reservation will expire, and a renewal request must be submitted. All fees must be paid prior to issuance of a building permit and may be paid online, by mail, or at 1002 Washington Avenue. A copy of the Impact Fee receipts and a copy of this letter must be submitted with your construction plans when applying for a building permit. Plans must be approved by the Code Enforcement Branch of the Planning and Development Services Division prior to the issuance of a permit.

Please note, the Wastewater and Water Impact Fees quoted above are not refundable for any reason including failure to obtain a building permit or failure to complete the project for any reason.

Part III

Mr. Inigo Sanz
Fomento De Construcciones Y Contratas Inc., FCC SA
April 19, 2018
Page 3 of 3

For any written inquiries regarding the above information please contact:

The Utility Analysis Section
P.O. Box 2688
Houston, Texas 77252-2688

For direct inquiries, please contact the Utility Analysis Section at 832-394-8888 or email wcrtechs@houstontx.gov. Be sure to reference the ILMS Project Number listed on this letter.

Cordially,



Rudy Moreno, Jr.
Deputy Assistant Director
Utility Analysis Section

For: Carol Ellinger Haddock, P.E.
Director
Houston Public Works

CEH: RM: sg (Council District B)
WCR File Number: 0015770-039
ILMS Project Number: 18039669



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
Texas Pollutant Discharge Elimination System
Stormwater Construction General Permit

The Notice of Intent (NOI) for the facility listed below was received on April 30, 2018. The intent to discharge stormwater associated with construction activity under the terms and conditions imposed by the Texas Pollutant Discharge Elimination System (TPDES) stormwater construction general permit TXR150000 is acknowledged. Your facility's TPDES construction stormwater permit authorization number is:

TXR15788L

Coverage Effective: April 30, 2018

TCEQ's stormwater construction general permit requires certain stormwater pollution prevention and control measures, possible monitoring and reporting, and periodic inspections. Among the conditions and requirements of this permit, you must have prepared and implemented a stormwater pollution prevention plan (SWP3) that is tailored to your construction site. As a facility authorized to discharge under the stormwater construction general permit, all terms and conditions must be complied with to maintain coverage and avoid possible penalties.

Project/Site Information:
RN110379211
Houston Recycling Materials Facility
Approx. 100 Yards Southeast of The Intersection of Ley Rd &
Roundhouse Ln.
Houston, TX 77078
Harris County

Operator:
CN605116896
Fomento De Construcciones Y Contratas, S.A.
10077 Grogans Mill Rd Ste 466
The Woodlands, TX 77380

This permit expires on March 05, 2023, unless otherwise amended. If you have any questions related to processing, you may contact the Stormwater Processing Center by email at swpermit@tceq.texas.gov or by telephone at (512) 239-3700. For technical issues, you may contact the stormwater technical staff by email at swgpp@tceq.texas.gov or by telephone at (512) 239-4671. Also, you may obtain information on the TCEQ web site at <http://www.tceq.texas.gov/goto/avq-dpa>. A copy of this document should be kept with your SWP3.

Issued Date: April 30, 2018

FOR THE COMMISSION

Stephani Bryson Penber

2
NOTICE
4.00
M

NOTICE OF STORM WATER QUALITY REQUIREMENTS

STATE OF TEXAS §
COUNTY OF HARRIS § Know All Men by these Presents: RP-2018-178958
04/26/2018 RP1 \$24.00

1. Fomento de Construcciones y Contratas Inc ("Owner") is the owner of the real property described in Exhibit A attached hereto and made a part hereof for all purposes (the "Property").
2. The Property is subject to, and shall be owned, used and maintained in accordance with Divisions 1 and 2 of Article XII of Chapter 47 of the City of Houston Code of Ordinances, as may be amended from time to time (the "Ordinance"). The obligation for the Property to comply with the Ordinance runs with the Property, and is binding upon the Owner and its successors and assigns. Each portion of the Property, however such portion may be created, shall be subject to the Ordinance, and the owner of each portion shall be responsible for ensuring that the portion complies with the Ordinance requirements.
3. The Owner has submitted a Storm Water Quality Management Plan (the "Plan") for the Property to the City of Houston. The Plan will be incorporated by reference into the Storm Water Quality Permit required by the Ordinance for the Property. Any storm water quality structural or non-structural control specified in the Plan may not be changed from the plans and technical specifications in the Plan without the written consent of the City of Houston pursuant to the provisions of the Ordinance.
4. The Storm Water Quality Permit for the Property must be amended if ownership of all or any portion of the Property is transferred to a different person or entity.

EXECUTED this 20 day of APRIL, 2018.
BLAKE KIRK
16110 HOLLISTER ST
HOUSTON TX 77066

Ret: [Signature]

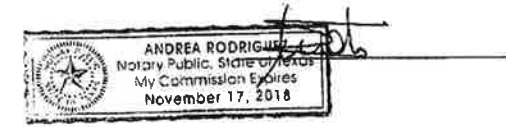
FOMENTO DE CONSTRUCCIONES Y CONTRATAS INC
By: [Signature]
Name: INIGO SAAZ
Title: OPERARIO EN CONCRETO

STATE OF TEXAS §
COUNTY OF HARRIS §

Before me, a notary public, on this day personally appeared INIGO SAAZ known to me (or proved to me on the oath of ILLIENSE DRA WEN) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this 20 day of APRIL, 2018.

Notary Public Signature & Seal





STORM WATER QUALITY MANAGEMENT PLAN

FOR

**HOUSTON MATERIALS RECYCLING FACILITY
Houston, Harris County, Texas**

Prepared for:

Fomento de Construcciones y Contratas Inc. (FCC)
1610 Woodstead Court
Suite 360
The Woodlands, TX 77078

Prepared by:

Storm Water Solutions, LLC
16110 Hollister Street
Houston, Texas 77066
(281) 587-5950
TBPE No. F-8364



APRIL 2018

Storm Water Solutions, L.P.
Texas Registered Engineering Firm

Turnkey Storm Water Pollution Control

Part III

Attachment III.3 – Closure Cost Estimate

Closure Cost Estimate Worksheet

1. List the types and maximum amounts of ~~combustible~~ materials stored ~~outdoors~~ at your facility at any time. Specify material amounts in tons or cubic yards.

Type of Material	Maximum Amount Stored Outdoors
Pre-processed Material	580 T at maximum processing capacity
Processed Material (baled at 810 lb/cy avg.)	540T at maximum processing capacity

2. Total amount of ~~combustible~~ materials stored ~~outdoors~~ (from Item 1): 1,120 T
3. Attach quotes for disposition of any or all of these materials. Each quote should specify the type(s) and amount(s) of material it covers, and a cost for disposition of each.
4. Total amount of materials covered by quotes: none
5. Total cost of disposition covered by quotes: \$ 0
6. Subtract the total amount of materials covered by quotes (Item 4) from the total amount of materials from Item 2:

Item 2 total	<u>1,120 T</u>
Item 4 total	<u>0</u>
=	<u>1,120 T</u>

If the number you entered for Item 6 is zero, the dollar figure entered for Item 5 is your financial assurance cost estimate. If this number is greater than zero, complete items 7 - 19 to determine the cost of disposition for materials not covered by quotes.

7. Nearest disposal facility authorized to accept materials on your site:
McCarty Road Landfill
8. Tipping fee (disposal charge) at this facility (use the same unit of measurement as in Item 2):
8(a) _____ per cubic yard or
8(b) \$27.00 per ton
9. Disposal cost = Item 6 x Item 8(a) or 8(b) = \$ \$30,240

Part III

10. Collection cost for materials not covered by quotes:

Multiply the number recorded on Item 6 by \$0.80 if calculated in cubic yards, or
Multiply the number recorded on Item 6 by \$1.00 if calculated in tons.

Collection cost: \$ 1,120 (if this number is less than \$500, enter \$500 on this line)

11. Transportation cost for materials not covered by quotes:

Distance from your facility to the disposal facility named on Item 7: 0.27 miles

12. Use the chart in Appendix B to determine the density of each type of ~~combustible~~ material stored ~~indoors~~ outdoors at your facility.

13. Total volume of materials with densities of less than 500 pounds per cubic yard:

0 cubic yard

14. Total weight of materials with densities greater than 500 pounds per cubic yard:

1,120 tons

15. Divide the number of cubic yards entered for Item 13 by 100: 0

16. Divide the number of tons entered for Item 14 by 25: 44.8

17. Add the numbers you have entered for Items 15 and 16: 44.8

This is the number of truckloads necessary to transport your materials for disposition.

18. Multiply the number you entered for Item 17 by the number of miles from your facility to the nearest authorized disposal facility (Item 11). 12.1

This is the number of "loaded miles" required for transportation to a disposal facility.

19. Multiply the number you entered for Item 18 by \$2.50: \$ 30.25

This is the cost of transportation for materials not covered by quotes.

20. Total closure cost: Add the dollar figures you entered for Item 5: \$ 0

Item 9: \$ 30,240

Item 10: \$ 1,120

Item 19: \$ 30.25

Total amount of your financial assurance responsibility: \$ 31,390.25