

FACTORY PRODUCTION CONTROL MANUAL



FACTORY PRODUCTION CONTROL MANUAL

FOR

**Highwood Quarry
Crown Quarry
Martells Quarry
Barking Recycling Yard**

Issue 12 – March 2020

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REVISION NUMBER	DATE	SECTION	COMMENT
1	9 th Feb 2017	All sections	Spelling
2	3 rd March 2017	Title page	Added Martells Quarry
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2	3 rd March 2017	Raw material	Added Martells Quarry
2	3 rd March 2017	SWP+MWP Stop Start	Added Martells Quarry
2	3 rd March 2017	Producing aggregate from inert	Added Martells Quarry
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3	20 th March 2017	Production	Moved the checks & procedures to '06 SRC Group Processes 2017'
4	23 rd March 2017	Control Procedures	Use of SharePoint
5	28 th September 2017	In-process Inspection	Clarified the process
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7	16 th August 2018	Production	Added Barking Recycling Yard
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9	7 th February 2019		
10	17 th September 2019	Producing Washed Recycled Aggregates	Added whole section
11	26 th February 2020	Sieves testing	5.90 Calibration sieve criteria changed according to Osprey email 25.02.2020
12	10 th March 2020	Spilting 4.4, 4.5, 4.6 in to two sections	Waste Acceptance Procedure and Processing Procedure

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1 INTRODUCTION

These procedures document the Factory Production Control system for aggregates to ensure that they conform to the relevant requirements of the various standards, as below:

- BS EN 12620 Aggregates for concrete;
- BS EN 13043 Aggregates for bituminous mixtures and surface treatments;
- BS EN 13242 Aggregates for unbound and hydraulically bound materials
- BS 3882 Specification for Topsoil
- BS 8601 Specification for Subsoil and requirements for use

2 ORGANISATION

2.1 RESPONSIBILITY AND AUTHORITY

The following positions comprise the Companies personnel with responsibilities affecting aggregate production, testing and control:

a. BOARD OF DIRECTORS

The Managing Director holds overall authority within the Company and is responsible for:

- Policy and setting company targets and budgets
- The day to day administration of the company, administration of company personnel, the purchase of capital plant and the provision of adequate personnel and facilities to operate and maintain the company's factory production control system

b. QUALITY MANAGER

- The overall establishment, implementation and maintenance of the quality and control systems
- The review and monitoring of company performance and the operation of the factory production control system as detailed in section 2.3
- For the action required to ensure the continued performance of the system and to implement improvement measures
- Ensuring that staffs are appropriately training, and that awareness of customer requirements is promoted throughout the company

c. TECHNICAL MANAGER

The Technical Manager report to the Managing Director and is responsible for:

- Testing of all aggregates to ensure that the requirements of the Factory Production Control Manual are met and maintained;
- Investigation into and correction of any anomalies which might cause Factory Production Control to be compromised;
- Ensuring that the Factory Production Control is always maintained, and the CE certificates are available for all products and end uses.

d. QUARRY MANAGER

Reporting to the Managing Director is responsible for:

- Administration of the Quarry Forman to ensure the efficient mechanical operation of all plant and equipment in order that all aggregates are consistently produced and delivered in accordance with Customers' specifications.
- Administration of Production Operatives and Drivers to ensure that aggregates are consistently produced and delivered in accordance with Customers' specifications.
- Operation of the site in accordance with standard work instructions to ensure aggregates is consistently produced.

2.2 MANAGEMENT REPRESENTATIVE FOR FACTORY PRODUCTION CONTROL

The Production Manager in conjunction with the Technical Manager, shall be responsible for the management and supervision of the Factory Production Control Manual and for ensuring that the requirements of the stated standards are implemented and maintained.

2.3 MANAGEMENT REVIEW

- a. A routine review of the Factory Production Control System will be undertaken at least annually and prior to any significant event will affect the operation of the system to ensure the continued suitability, adequacy, and effectiveness of the system.
- b. The management review will review all customer feedback and complaints logged since the previous review and make recommendations for improvement as required.
- c. Where action has arisen then the Technical Manager will update the status and progress on the corrective and preventive action taken and the effectiveness of these actions will be reviewed.
- d. Any information relevant to the Factory Production Control System may be referred to the meeting by any employee, including recommendations for improvement.
- e. Resources and training requirements will be discussed, and action agreed. The Managing Director will approve the appointment of any Independent Consultants or sub-contractors where required.
- f. A review of all suppliers, process performance and product conformity will be undertaken, and any non-conformities and action noted.
- g. Any anticipated changes that could affect the Factory Production Control System will be reviewed and responsibility for effective implementation of changes will be defined.
- h. The review will seek to identify and implement any measures that will improve the effectiveness of the Factory Production Control System and processes.

3 CONTROL PROCEDURE

3.1 AMENDMENTS PROCEDURE

Then Company's Factory Production Control System is defined by the Company Factory Production Control Manual. This document shall be reviewed for adequacy and approved by the Technical Manager's signature prior to issue. The following procedure will ensure that the Factory Production Control Manual remains current and valid:

- a. Copied documents will be deemed un-controlled and a statement will be present on the document issued;
- b. Each page of the manual will be individually numbered;
- c. The Technical Manager will be responsible for all additions and revisions being recorded;
- d. Any employee may suggest changes, but all changes must only be implemented under the authorisation of the Managing Director of designated signatory;
- e. All changes must be recorded on the amendments register and the appropriate pages in each manual amended. The section must be highlighted by a line in the margin.

3.2 TECHNICAL LIBRARY

- a. All standards, Codes of Practice and other technical data required shall be maintained by the Technical Manager and shall be listed on the Standards register. All live documents will be published on SharePoint 01 BMS & Compliance/42 British Standards and will be made available to the relevant employees.
- b. The Technical Manager shall be responsible for maintaining all standards in an up-to-date status by checking against appropriate BSI or technical publisher's revision list. The Company is a member of the British Standards Institute and all Standards shall be checked again the BSI monthly update publication.
- c. Review of other publications shall be carried out annually and verification of annual review shall be by signature in the appropriate column of the Standards Register.
- d. Standards and reference documents which are obsolete or superseded shall be destroyed or, if required for record purposes, clearly marker "SUPERSEDED"
- e. The Technical Manager shall be responsible for ensuring that only current versions of standards, etc., are in the Company's operations and any issue of such item shall be on a "controlled" basis.

3.3 DOCUMENT AND DATA CONTROL

This procedure defines the method which shall be used to control the approval, registration, issue, and distribution of documents which prescribe activities affecting the Production Control system.

- a. All incoming correspondence and documentation shall be promptly opened, and date stamped by the Receptionist and distributed for action or information as appropriate.
- b. All controlled documents shall be kept on SharePoint. Only nominated persons will be able to edit controlled documents.
- c. All documents shall be reviewed for adequacy and only approved documents shall be saved on SharePoint.
- d. All documents shall be made available via SharePoint to authorised personnel at the locations where the prescribed activity is performed.

3.4 SUB-CONTRACT SERVICES

The company does not subcontract out any part of its operation at Highwood, Crown, Martell Quarries & Barking Recycling Yard.

3.5 RAW PRIMARY AGGREGATES MATERIAL

SRC Aggregates has quarried sand and gravel from the site known as

- Crown Quarry, excavation of an area of 140 HA commenced 2011
- Highwood Quarry, excavation of an area of 140 HA commenced 2013
- Martell's Quarry, excavation of an area of 11 HA commenced 2017

Maps of the site and excavation plans are available for inspection at B Lodge, Highwood Quarry, Crown Quarry and Martells' Quarry.

4 PRODUCTION

These procedures define the method by which production processes are planned and controlled to ensure the aggregates produces comply with the requirements of the standards, and cover the following:

- Identification and control of aggregates
- Stock control
- Control of any material contamination

The Production Manager shall be responsible for the implementation of these procedures and will seek the support of the Technical Manager where necessary.

All individuals shall strictly follow the procedures applicable to their designated duties.

Inspection and testing during production and on the final product shall be carried out by the Technical Manager per the procedures laid down in this document.

4.1 PRE-START-UP CHECKS

It is the Quarry Manager, or his nominee's, responsibility to ensure that the appropriate checks are carried out at aggregate production plants prior to the plant being started.

- Inspect working face for any material which could contaminate the final product i.e. topsoil, chalk, clay
- Check that only approved raw material is being excavated
- Ensure clean working practices are followed in order that raw materials are not contaminated by any fuel spillage or waste oil

- Check belt lines and conveyors for damage which could cause spillage or contamination
- Check crusher jaw settings, grading screens for any damage, cleanliness of washing water, effluent dispersal, and general condition of washing plant
- Carry out routine greasing of plant. Check oil, water, and fuel in engines

4.2 IN-PROCESS INSPECTION

- a. Plant Operative shall be responsible for the continuous observation and inspection of the production process to ensure that at each stage the product conforms to the requirements relevant to that stage. These inspections are visual (checking for any increases in fines or oversized material, visual signs of contamination such as clay, wood, plastic and metal in the finished product) and olfactory signs of contamination (smells of hydrocarbons, organics)
- b. All instances where the product does not conform to requirements shall be immediately reported to the Quarry Foreman/technical manager and his instruction for remedial action shall be followed. Quarry Foreman shall record any environmental hazards in the site diary. This may include but is not limited to; applying additional processing or reprocessing the material, quarantining either for remedial action to be taken or disposal at the appropriate facility.

4.3 PRODUCING PRIMARY AND SECONDARY AGGREGATES

a. SWP & MWP - PLANT START AND STOP PROCEDURES

It is the Plant Foreman's, or his nominee's, responsibility to ensure that the correct procedure is followed in starting and stopping production.

These procedures can be found in our Safe System of Work: -

- SRC-228-GN-SW Soil Wash Operations
- SRC-225-GN-SW MWP Operations

b. PLANT RUNNING CHECKS

It is the responsibility of the Plant Foreman and all relevant operators to carry out the following checks whilst the plant is running to ensure that all finished products conform to the specification.

- Check input material for any contamination.
- Check finished product stockpile for any obvious contamination or non-conformity regarding size. Any reject material shall be removed for disposal or re-processing.
- Check that all pumps are running correctly.
- Re-fuel static engines as necessary.

4.4 PRODUCING WASHED RECYCLED AGGREGATE FROM WASTE

a. Waste Acceptance Procedure

- An enquiry/order is made according to the enquiry/order of removal of waste. The haulier/driver is instructed by transport office of the type of waste being collected and a WTN is completed at point of collection.
- The sites are permitted (Permit NO: EPR/AB3009HS (Highwood) (inert) EPR/GB3808FD (Martells) (inert & non-hazardous) and the company has a waste carries licence
- The only acceptable input materials are the waste materials specified in the relevant permits for the sites.

b. Processing of Waste

- Stockpiled material will either be pre-treated by crushing and screening or transferred directly into the processing plant for treatment by an excavator.
- Materials entering the processing plant will be loaded into a feed hopper via a 360 excavator. The material will be transferred by to a vibrating screen which shall undertake initial separation removing the

63mm+ oversized. This material will be transferred to the crushing yard. (see producing aggregates from inert waste)

- Having initially been partly separated, the materials are then subjected to further classification by screening and washing process whereby water is added to assist the separation and cleaning process. Some sands and silts are washed away into the sand classification system and larger particles are then transported by conveyor to the final screening and separation area.
- Course particles then pass over the final screen which sorts them by size and then transfers them in their graded form into different stockpiles. The sizes of aggregate which are typically produced are 4-10mm, 10-20mm and 20-63mm stone, although the specific product produced will vary depending upon the requirements at the time.
- The sands and silts pass into the classification system where they are separated into their component sizes which results in the production of 0-4mm concreting sand and 0-2mm fill sand. The silts which have been removed are then transferred to a silt press. The silt will form a filter cake which will be used for the progressive restoration of the quarry.

4.5 PRODUCING DRY RECYCLED AGGREGATES FROM INERT WASTE

a. Waste Acceptance Procedure

- An enquiry/order is made according to the enquiry/order of removal of inert waste. The haulier/driver is instructed by transport office of the type of waste being collected and a WTN is completed at point of collection.
- The site is Permitted (Permit NO: EPR/AB3009HS (Highwood) EPR/GB3106SE(Crown) EPR/EB3403CY(Barking)) and the company has a waste carries licence
- The only acceptable input materials are the inert waste materials specified in the relevant permits for the sites
- The weigh bridge office inspects the material on arrival, accepts waste onto site, according to our waste acceptance procedure, the waste is defined into the following waste materials: -
 - Clean hard core (170107)
 - Concrete (170101)
 - Asphalt (170302)
 - Inert subsoils and clays suitable for landfill (170504)
- The weighbridge operator directs material to correct storage area to be unloaded, each material is segregated in its own area.

b. Processing of Waste

- The waste material (Hardcore/Concrete/Asphalt) is loaded onto the crusher to be crushed and processed to BSEN13242 standard
- The hardcore is processed to a 6F5 (600 series Highway works) by having the jaws on the crusher set to 80mm. The material is proceeded with just one pass through the crusher and no additional processing apart from manual litter picking
- The concrete is processed to a Type 1 cl 803 (800 series Highway works) by having the jaws on the crusher set to 50mm. The material is processed through the crusher and immediately fed into a single screen scalper which has 45mm decks on it. The oversized is reprocessed back through the crusher. Litter picking occurs in the oversized stockpile.
- The asphalt breakout is processes to a Type 4 cl 807 (800 series highway works) by having the jaws on the crusher set to 50mm. The material is processed through the crusher and immediately fed into a single screen scalper which has 45mm decks on it. The oversized is reprocessed back through the crusher. Litter picking occurs in the oversized stockpile.
- Asphalt planings are processes to a Type 4 Cl 807 (800 series highway works) by feeding the material though a single screen scalper which has 45mm decks on it. The oversized is reprocessed back through the crusher. Litter picking occurs in the oversized stockpile.

- The material is then transferred to the correct stockpile via WLS or stacker.
- All recycled material is produced to BS EN aggregates standard, appropriate for the use for which the aggregate is destined.

4.6 PRODUCING SOIL FROM INERT WASTE

a. Waste Acceptance Procedure

- An enquiry/order is made according to the enquiry/order of removal of inert waste. The haulier/driver is instructed by transport office of the type of waste being collected and a WTN is completed at point of collection.
- The site is Permitted (Permit NO: **EPR/AB3009HS (Highwood) EPR/GB3106SE(Crown) EPR/EB3403CY(Barking)**) and the company has a waste carries licence
- The only acceptable input materials are the inert waste materials specified in the relevant permits for the sites
- The weigh bridge office inspects the material on arrival, accepts waste onto site, according to our waste acceptance procedure, the waste is defined into the following waste materials: -
 - Clean topsoil (170504)
 - Naturally occurring granular Subsoil (170504)
- The weighbridge operator directs material to correct storage area to be unloaded, each material is segregated in its own area.

b. Processing of Waste

- Topsoil is screened through a material reclaimer screener which has 50mm finger screens over 15mm piano wire screens to produce a 15mm recycled topsoil. The 15mm+ fraction is then moved to the subsoil heap to be processed into an engineering fill.
- Naturally occurring granular subsoil is screened through a material reclaimer with 50mm finger screens over 50mm decks. The finished product is used to produce a Class 1A/B engineering fill (600 series highway works). Any oversized stone material is moved to the hardcore heap for processing into recycled aggregate.
- The material is then transferred to the correct stockpile via WLS or stacker
- All recycled soils will be regularly tested for chemical contaminants to ensure that the material is suitable for use. The materials will be tested against the human health criteria generic end use scenarios of residential, parks/open space and commercial/industrial.

4.7 VISUAL INSPECTION OF FINAL PRODUCT

- a. Operative shall carry out a visual inspection of the final product, both upon loading and upon delivery, to ensure that it is homogeneous and free of contamination.
- b. Any material which does not conform to specified requirements shall be reports to the Quarry Foreman and his instructions for disposal of the material shall be followed.

4.8 LOADING AGGREGATES

It is the joint responsibility of the loading shovel driver, weighbridge operator and the vehicle driver to ensure that the correct aggregates are loaded onto each vehicle and that any checks to prevent contamination of the material have been carried out.

LOADING VEHICLE

- a. Before vehicle is driven onto weighbridge, the Vehicle Driver is to check that the buck is free of any material which would contaminate the next load.
- b. Weighbridge operator will direct you to the correct loading area

- c. Inform Loading Shovel Driver of the type of quantity of material required.
- d. Loading Shovel Driver shall load the vehicle with quantity of material required using bucket weigh-gear, if fitted, to ensure that approximately the correct amount is loaded.
- e. When loading fine aggregate, the Loading Shovel Driver should always use material from stockpile which has been left to drain for at least 3 days.
- f. Vehicle Driver shall return to weighbridge to record gross weight of vehicle. If quantity of material is more than 0.4T different from that required, have load adjusted, always ensuring that legal weight figures are not exceeded.
- g. Vehicle Driver shall leave weighbridge, sheet load and proceed to delivery point.

5 INSPECTIONS AND TESTINGS

5.1 GENERAL

This procedure defines the methods to be used for inspection of and testing of material for compliance with the standards throughout the production process.

The Technical Manager shall be responsible for all aspects of inspection and testing of the material in the Company's laboratory. The Company will make available to the Technical Manager the necessary facilities and equipment to allow him to carry out the required inspections and tests.

The Technical Manager shall create and maintain and schedule of minimum test frequencies necessary for meeting and ongoing conformity of the aggregates. All aggregates produced by the company are subject to 'attestation of Conformity Level 4' which is dependent on self-assessment. Demonstration of continued product conformity will allow the Company to attach the CE mark as declaration of such conformity.

Test methods shall be in accordance with the following standards:

- BS EN 932 Test Methods – General
- BS EN 933 Test Methods – Geometrical Properties
- BS EN 1097 Test Methods – Physical and Mechanical
- BS EN 1367 Test Methods – Thermal and Weathering
- BS EN 1744 Test Methods – Chemical

5.2 FINAL TESTING

Testing for the final product shall be carried out on a routine basis by either the Company laboratory or a UKAS accredited laboratory to verify compliance with the requirement of the relevant British Standards and/or such other standards as may be specified by the Customer.

The frequency of testing shall be carried out in accordance with the following:

- EN 12620:2002 Tables H.1, H.2 and H.3
- EN 13242:2002 Table C.1
- EN 13139:2002 Table E.1
- EN 13043:2002 Table B.1 and B.2

Any results not conforming to the relevant requirements of the current standards, or other specified requirement, shall be reported immediately to the Technical Manager by means of a Non-Conformance Report, accompanied by a copy of the test results.

In cases of doubt, the test procedure shall be repeated to confirm the test results and, where the non-conformance is confirmed, the required remedial action shall be determined in consultation with the Technical Manager and details of the resolution of the non-conformance recorded on the Non-Conformance Report.

5.3 TESTING SCHEDULE

As per Company Testing Schedule

5.4 TEST CERTIFICATE

Where a customer requires the Company to provide a Material Test Certificate for material supplied, results shall be recorded on a grading summary report or on a Certificate or Test for other tests. This certificate will be supplied by a UKAS lab.

5.5 CE MARKING

The Technical Manager shall be responsible for ensuring that product conformity is maintained at all time and the CE certificates are available for all products.

5.6 SAMPLE AND TEST IDENTIFICATION AND RECORDS

All samples shall be clearly traceable throughout the testing process by identifying each sample with a unique sample number and recording this on the aggregate sampling record. All test records shall clearly identify the sample to which they relate and shall be retained by the Technical Manager.

5.7 CALIBRATION – LABORATORY EQUIPMENT

- a. This procedure defines the method of which Sampling, Measuring and Text Equipment shall be controlled, calibrated and maintained to ensure it suitability for accurately testing materials for compliance with specifications.
- b. The Technical Manager shall be responsible for maintaining the Company's sampling, measuring and test equipment in accordance with the requirement of BS EN test methods, as applicable, and for maintain service records.
- c. Each item of reference, sampling, measuring or test equipment shall be marked with an identification number and shall be recorded in the Test Equipment Register maintained by the Technical Manager.
- d. The Technical Manager shall be responsible for the safe keeping of each item of equipment and for ensuring that it is used in a manner which ensures that its limits of accuracy are known and applied. Periodic checks shall be made against known standards when it is suspected that readings are inaccurate.
- e. If an item is damaged or suspected to be reading inaccurately it shall be immediately recalibrated in-house against a standard reference instrument or by a specialist sub-contractor. Where it cannot be adjusted or repairs by normal means it shall be replaced.
- f. An equipment Service Record shall be maintained by the Technical Manager for each item of equipment and this shall record details of repairs, servicing or calibration carried out. Suppliers' conformance certificates and any test or calibration certificates shall be retained with the Equipment Service Record.
- g. Routing calibration and/or servicing shall be carried out by the Technical Manager or by an approved specialist sub-contractor at regular interval as follows.

SIEVES

- Visual inspection before each use
- On an annual basis an internal & external (UKAS laboratory) will carry out tests on the same sample of material using the same size sieve. If the percentage passing all the sieves for both gradings is within a 5 percent tolerance then your sieves are deemed to be accurate.

BALANCES

- Annually against a UKAS accredited specialist sub-contractor.

5.8 CALIBRATION – WEIGHBRIDGE

Calibration of the quarry weighbridge is carried out by the Local Authority Trading Standards Departments and Calibrations Certificates shall be retained by the Quarry Foreman.

6 RECORDS

6.1 RESPONSIBILITY

It is the responsibility of the Technical Manager to maintain all records that are required to be kept by the production control system.

6.2 RECORDS TO BE RETAINED ARE:

- CE certificates
- Sampling and testing records
- Non-conformance reports
- Corrective action reports
- Test equipment and calibration records
- Manager review reports and minutes
- Sub-contract service and testing reports and records

All records shall be retained for a minimum of 6 years. Records shall be kept in good order and shall be readily retrievable for inspection.

7 CONTROL OF NON-CONFORMING PRODUCT

- a. In the event of a material being non-conforming, this will be recorded in the Non-conformance Register.
- b. An investigation shall take place to find the cause of the non-conformance.
- c. Corrective action shall be initiated to prevent a recurrence of the problem and shall be recorded in the Corrective Action Register.
- d. Upon discovering that a material is non-conforming it shall be marked as such to prevent it being sold. The material may be sent for re-processing or sold for another application for which it is suitable.

8 HANDLING AND STORAGE OF PRODUCT

- a. On completion of processing the various products are stockpiled in dedicated areas.
- b. Should there be enough volumes of material stockpiles that it creates a risk of contamination from other products then alternative storage areas are identified and the material moved by loading shovel to these areas.
- c. All storage areas and handling equipment are maintained to ensure adequate segregation and integrity of product.
- d. Should the segregation or the cleanliness of the product be compromised then the affected material is identified as non-conforming, moved to an area identified for contaminated material and, if appropriate, re-processed. If the material cannot be re-processed, then it shall be disposed of in an approved manner.

9 DELIVERY OF PRODUCT

- a. All aggregates sold from the site are loaded from the dedicated storage areas by the Company using front end loading equipment, and are either loaded onto the delivered to the customer in the Company's own liveried vehicles, or loaded onto the customer's own vehicles (see Section 4.4)

- b. When delivering aggregates, the Company's liveried vehicles which have a gross weight of 7.5 tonnes, or more shall be sheeted to prevent contamination and loss of material from the vehicle between the point of loading and point of delivery.
- c. Weigh tickets must be produced for every load of primary and secondary aggregates despatched from site.

This delivery documentation must include:

- Date of supply;
- Customer's name and contact details;
- Product description to aggregates standard and customer specification;
- The name and contact details of the producer, including the address of the site of production;
- Quantity supplied by weight/volume; and
- for recycled material, a statement that the product was produced in compliance with this quality protocol.

10 TRAINING

- a. All personnel involved in the production, testing, handling, and delivery of aggregates shall receive the appropriate training to allow them to complete their duties. Being mindful of the requirement to maintain the quality of the product at all stages.
- b. Appropriate training records for all relevant personnel shall be maintained at the Company's head office.

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