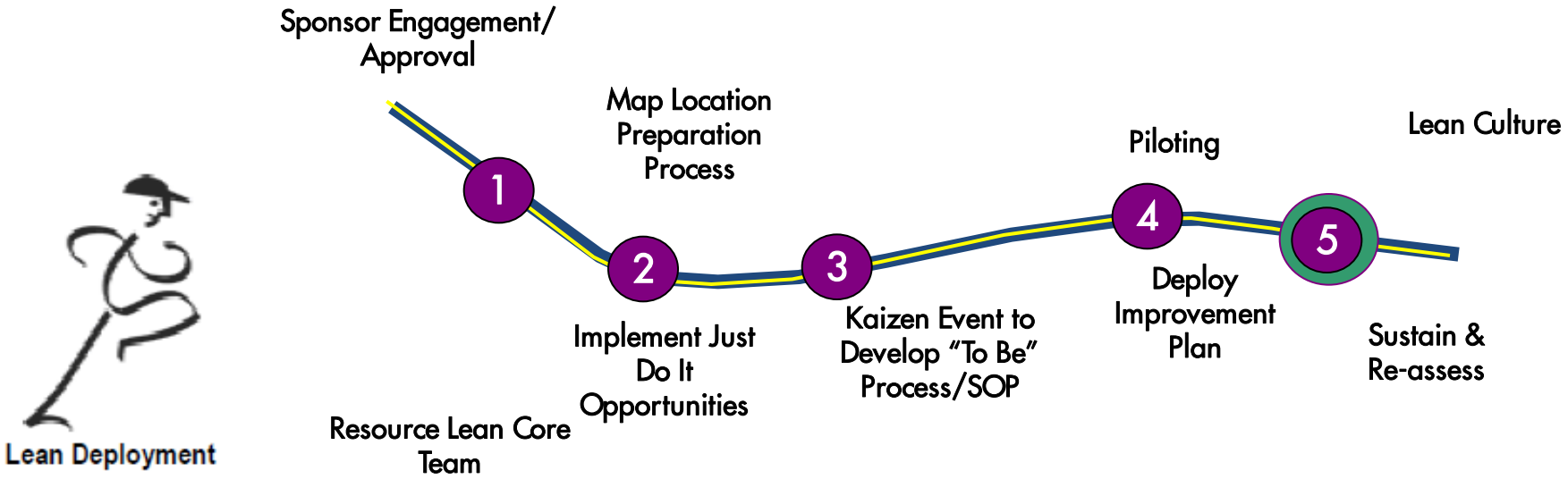
Lean Project Deck
Land Location Preparation

Lean Facilitator/Coach: C.C Bisike-Ojiako

Project Manager: Godian Ehirim

Project Champion: Okee Elechi

Land Location Preparation Improvement Project



01 Apr – 30 April 2012

- Prepared Draft Charter
- Project approval by Sponsor
- Core team resourced
- Hold kick off meeting
- Process Walk
- Build Value Stream Map

1 May – 30 May 2012

- Identify & prioritize opportunities
- Kaizen Event to Develop "To Be" Process

July 2012

- Imbed SOP
- Imbed leader Standard Work
- Create CI Time
- Imbed Visual measures

Outcome

Hard Benefits

Cycle Time reduction:

Cycle Time reduction from 8months to 5months (37.5%)
Potential cost savings of F$ 4.9mln

Soft Benefits

Motivated workforce & Stress reduction
Improved Environmental performance; Improved Reputation
Reduced Exposure to HSE risks

Project Charter: Lean on Land Location Preparation

PROJECT OWNERSHIP

Business Unit: Engineering

Project Sponsor: Okee Elechi

Project Manager: Godian Ehirim

Lean Facilitator: Chucks Bisike-Ojiako

Team Members:

1 Engineering: (G. Warde/ Inno Chigbu)

2. Wells (Amos Trost/ John Musa)

3. Development (Forster uzoho)

4. Environment (Chukwuka Amos-Ejesi)

5: C &P (Francis Wilcox)

BUSINESS CASE

In dry land, it takes an average of 8 months to prepare a typical location with associated access road at a cost of circa fUSD4m. In seasonally flooded land areas, it takes circa20months at a cost of circa fUSD11m due to sand filling and piling works. There is therefore little or no flexibility in location readiness with changing rig programme.

OPPORTUNITY STATEMENT

With current 6 rig programme in 2012 and 2013 requiring about 30 Land locations annually, opportunity exists to reduce schedule (cycle time) and cost through optimisation of the requirements and processes for location preparation. This will support faster maturation of new projects as well as increased production of oil and gas.

GOAL

Reduce schedule (Cycle Time) for location preparation by 30%

Reduce cost of location preparation by 30%.

Seek opportunity to reduce land take for capital locations.

PROJECT STATUS

G On Track Y Delayed R Stopped

Overall % Compl	Start Date	Completion Date	% Compl	Health
Identify	01/04/12	30/04/12		
Improve	01/05/12	31/05/12		
Sustain	01/06/12	30/06/12		
Close	05/07/12			

BENEFITS

Gross Hard Benefits:

Efficiency in location preparation will reduce schedule (Cycle Time) by 30% (54 – 135days) and cost by 30% (1.2m- 3.3m USD). It will in addition support faster maturation of new projects as well as increased production of oil and gas

Soft Benefits:

- Save time for value added work
- Improved process and efficiency
- On-time delivery
- Improved relationship b/w Wells and Engineering

SCOPE

IN:

Land Location preparation process review

Loc Pre Cost and schedule review

Implementation of earlier report (Cluster).

OUT:

Swamp Location Preparation

Land take review

Rig contract review

Location preparation contract review.

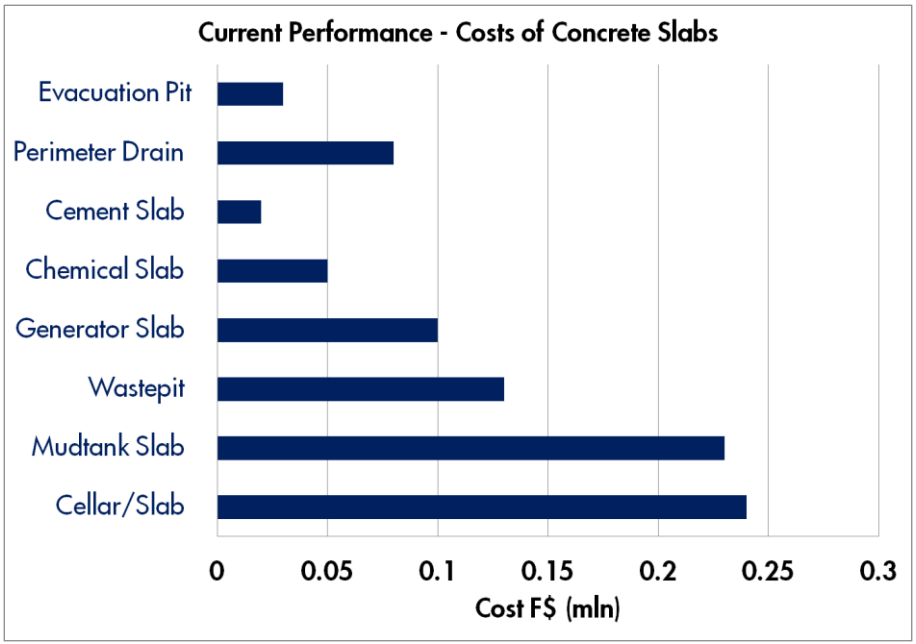
POTENTIAL ROADBLOCKS / ISSUES

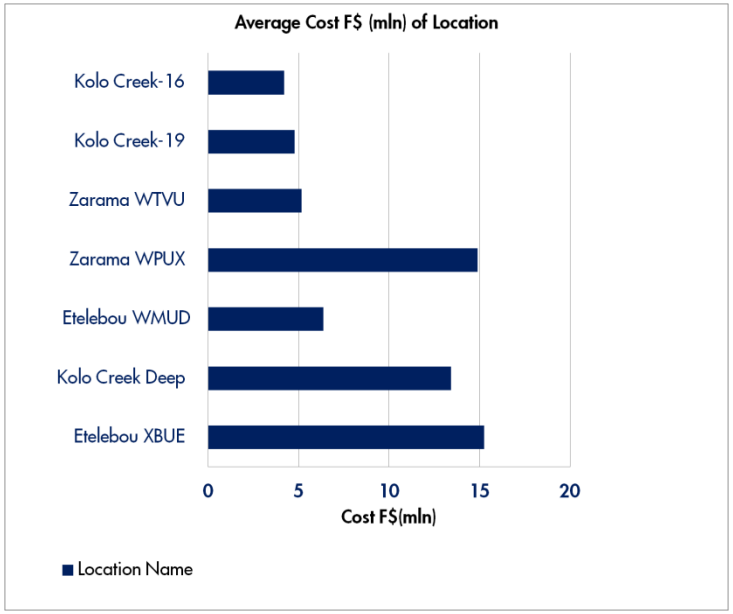
Availability of nominated team members

Current Performance

It takes an average of 8 -10 months to deliver a location in dry land at a cost of $4million.

In seasonally flooded areas, the indices average 18months @ $11million due to piling and deep sand filling above flood level for all season access and well integrity.





Voice of the Customer

Customer (Internal & External)	Key Issues (How the customer expresses it)	Requirements (what the customer wants)
Wells	*Location access road bad or delay in repair - increases rig move duration/reduces rig utilisation (higher string months) *EIA not ready or expired – results in rig shut down/NPT * Waste management approvals delayed - due to discrepancy with approved EIA (poor upfront work) *Location rework to lay flow line to cellar pit, etc – limited by existing design and due to un-optimise initial consultation with Engineering/Wells (header position, WH orientation, etc). Result in higher cost, rig delays, etc * Bent stove pipe pilled by Engineering (Gbaran field) – offline activity, now part of rig scope reducing utilisation	• Location access road readiness be included in yardstick for determining location status • A thorough process flow review and overhaul required to remove bottlenecks with EIA • Location design modification required i.e., horizontal slots incorporated for flowline placement. Better upfront consultation required • Wells/Engineering to revisit this great opportunity to view for restoring benefits through a stage implementation planned
Land Preparations (Eng)	•Frequent changes in STDWS •Non standardisation of rig template/requirements •Late land acquisition •Late release of wells (workover locations) •Protracted FTO discussions •Frequent community disruptions	Stable STDWS Standardisation of rig template/requirements Early land acquisition Early release of wells (workover locations Cordial community relationship
Environmental	•EIA considerations are not carried along when planning for projects	As soon as the project are in the identify/assess stage on the ORP, EIA team should be notified EIA so that all regulators can be carried along and timely approvals gotten.

Voice of the Customer

Customer (Internal & External)	Key Issues (How the customer expresses it)	Requirements (what the customer wants)
Logistics Equipment Premob	•Inaccurate and incomplete documentation •Non ready transportation to premob location •Failure to rectify defects within 10 days after defect notice had been issued	
Security	•Inaccurate and incomplete documentation	
Community FTO	•Non provision of FTO requirements in project PO •Non early engagement of community FTO team to allow for lead time in engagement	

Current State TIMWOOD Observations

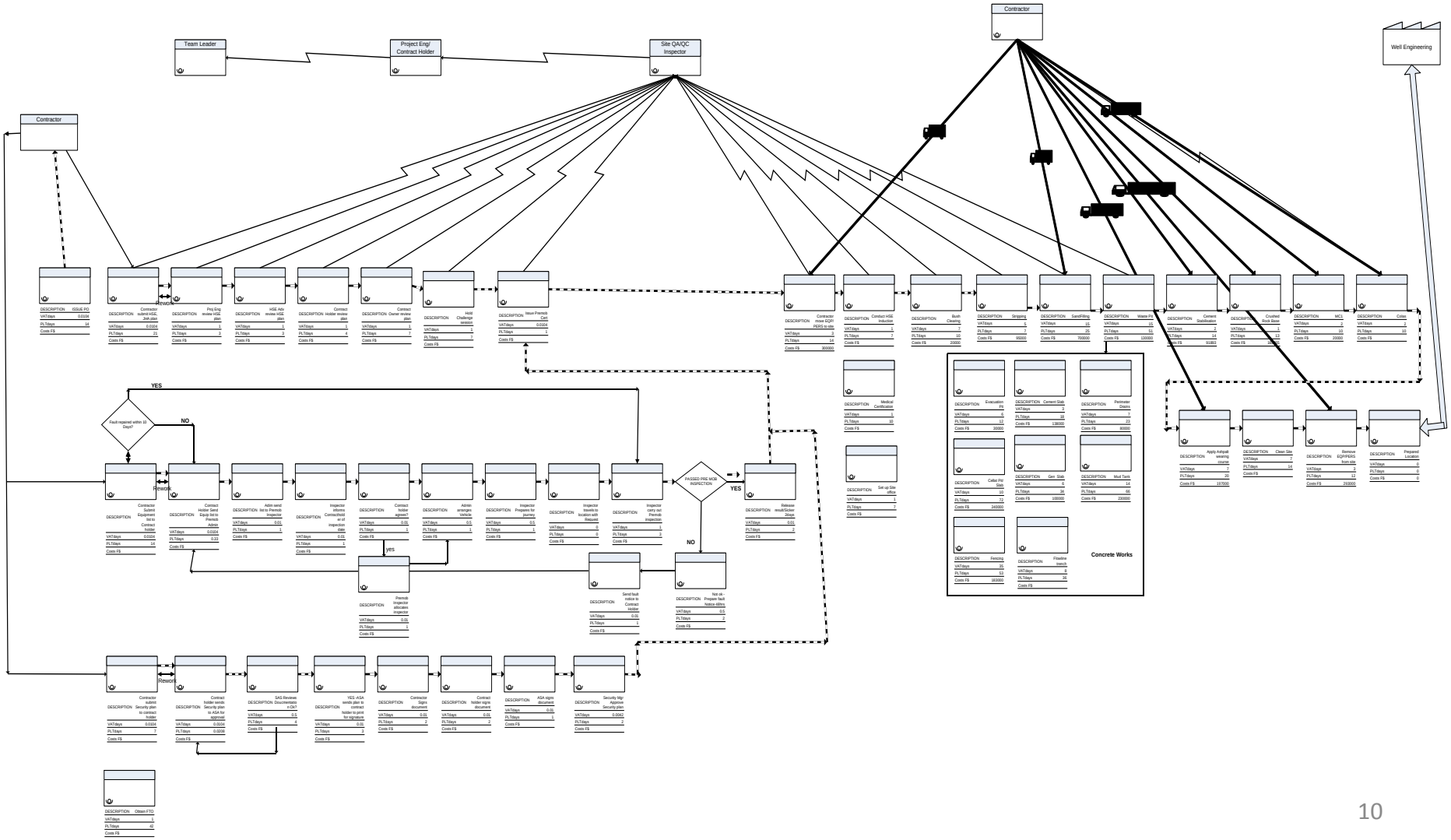
Area	TIMWOOD Observations/Bottlenecks	Impact
Haulage	Haulage of sand and granite over long distances to site	increase transportation safety risks, standby time and impacts on cost and schedule
Haulage	Haulage of Asphalt over long distances to site	Increase transport safety, risks, standy time and impact son quality of asphalt, cost and schedule
Haulage	Haulage of Durabase materials over long distance to site	increase transportation safety risks, standby time and impacts on cost and schedule
Haulage	Current pricing of Durabase materials to site	High cost impact
Pre Mob	Poor project documentation (HSE, Equip, Security plan, JHA) by contractors	Delay in issuance of PreMob certificate and cost impact
Pre Mob	Late Delegation of Budget	Delays in issuance of PO and commencement of work with cost implication
Pre Mob	Late approval of Security plan by ASA and relevant signature	Reduces project time window and effective utilsation of dry weather window with cost impact
Pre Mob	Late issuance of contractor EQUIP premob sticker	Reduces project time window and effective utilsation of dry weather window with cost impact
Pre Mob	Late securing of LTO	Reduces project time window and effective utilsation of dry weather window with cost impact
Actual Construction	Flooding of existing Location	Stoppage of drilling whichimpacts on schedule and with attendant HSE risks
Actual Construction	Use of incompetent Contractors	Poor work quality leading to reworks and extended schedules with associated cost impact

Current State TIMWOOD Observations

Area/Function	TIMWOOD Observations/Bottlenecks	Impact
Actual Construction	Unstable STDWS	Increase in construction cost, impacts on timely location readiness with potential rig downtime costs
Actual Construction	Non availability of ready information (as built drawings, design & geotechnical reports, etc)	Restricts use of existing locations for drilling new wells. Cost impact
Pre Mob	Late removal of surface lines by asset engineering team	Delay in project delivery and increase in project cost due to equipment standby
Pre Mob	Late well securing by well engineering	Delay in project delivery and increase in project cost due to equipment standby
Actual Construction	Frequent community interruptions	Stoppage of work, project delivery delay and cost increase
Actual Construction	Partial implementation of clustering of wells	Increased location preparation ccost and increased schedule
Actual Construction	Extensive concrete works	Increased cost
Actual Construction	Breakdown of pilling hammer/rig	Delay in rig move with associated costs
Actual Construction	Poor condition of field roads	Delay in location preparation delivery and high costs

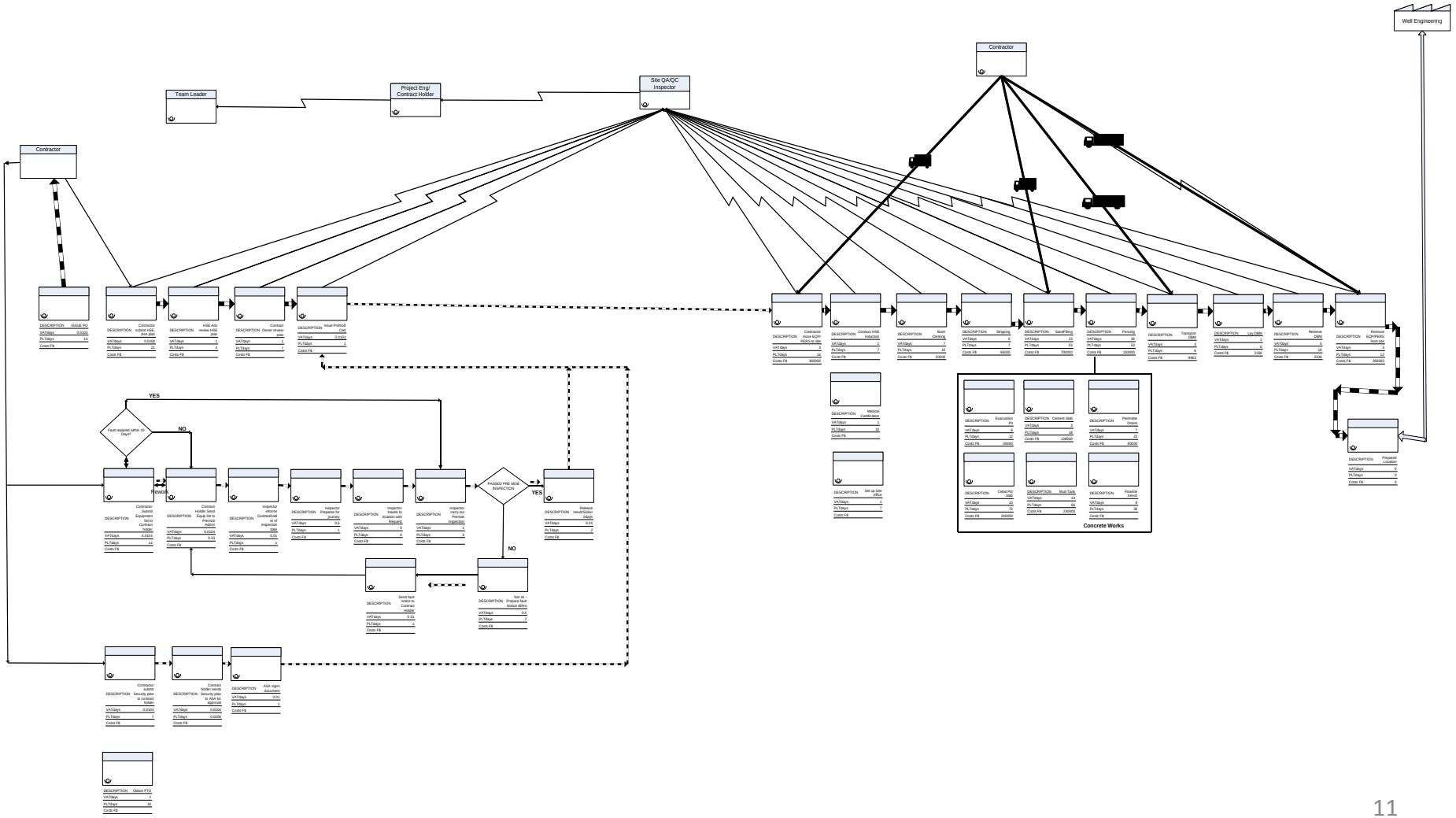
Current State Process Map/ VSM

Current State VSM – Location Preparation Process (Land)



Future State Map (After Improvement)

Future State VSM – Location Preparation Process (Land)



RECOMMENDATIONS

S/n	Recommendation	Schedule Reduction (days)	Cost Savings (f$)	Action Party	Target
	PREMOB				
1	Improve the time taken to secure FTO (from 42 days to 30 days)	13	0	SD	Immediate
2	Improve on time taken to review project security plan (28 days to 4 days)	21	0	Security Dept	Immediate
3	Improve on time to review project HSE plan (39 days to 5 days)	34	0	HSE & Civil Engineering	Immediate
4	Carry out equipment inspection within 3days of premob request and issues report & sticker within 2 days thereafter.	39	0	Logistics team	Immediate
5	Improve time to secure wells for existing locations	14	0	Well Services	Immediate
6	Improve time to remove flowlines in existing locations	14	0	Asset Engineering	Immediate
	HAULAGE				
1	Issue PO to Contractors with asphalt within 60km of site. Deviation subject to TPE approval.	6	0	Civil Engineering	Immediate
2	Relocate a set of Dura Base Materials to Gbaran field and retain a set in Kidney Island for quick intervention and reduction of logistics cost (space req10m x30m)	5	60,000	Civil Engineering & Prod Asset team	31/08/2012
3	Change pricing unit for haulage of Dura base mat from "per pc" to per "standard truck". (save f$3000 per trip)	0	120,000	Civil Engineering & SCM	In replacement contract
4	Use Logistics contracts for transportation of Dura base materials.	0	250,000	Civil Engineering	immediate

RECOMMENDATIONS

S/n	Recommendation	Schedule Reduction (days)	Cost Savings (f$)	Action Party	Target
	CONSTRUCTION				
1	Enforce Clustering as the default option in location preparation. Deviation shall be subject to VP-Technical's approval.	245	4,000,000	Development	Immediate
2	Use Dura Base mat in campaign mode and when location is not planned to be revisited in the near future. Deviation subject to TPE approval.	34	342,000	Civil Engineering	Immediate
3	Eliminate concrete generator slab and chemical slabs and replace with asphalt surface.	30	78,000	Civil Engineering	Immediate
4	Eliminate waste pit. Change current waste management approach to pitless model.	36	88,000	Wells	Immediate
5	Contractor to provide spare piling hammer as a standard condition for piling work.	14	0	Civil engineering	In replacement contracts
	OTHERS				
1	Release budget early for all location in the sequence to enable early commencement				
2	Improve (standardise) Rig selection strategy and stabilise drilling sequence.				
3	Carry out concrete slab requirements review in line new tech developments and DPR req				